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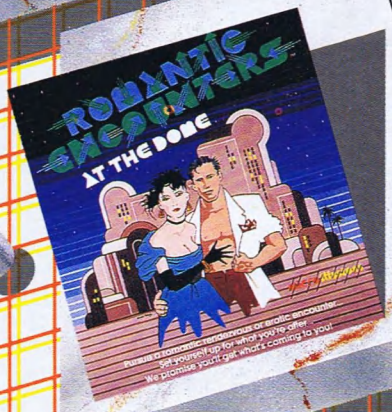


The warp's fathomless depths

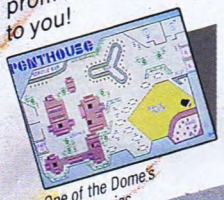


The warp begins to explode as opponent is shot down

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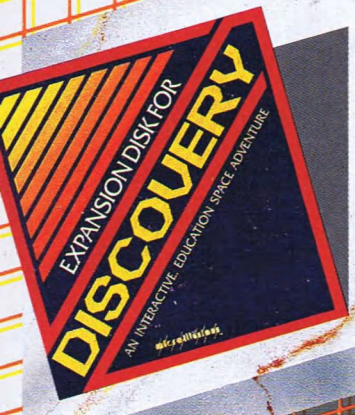


One of the Dome's alluring stories



The lounge, a place of enticing rendezvous

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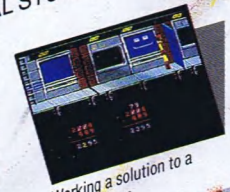


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THE AMIGA DIMENSION

"OVER 700 PRODUCTS..."

The AmiExpo hit the West Coast of the U.S.A with an impact equalling its highly successful debut in New York, bringing some new and very exciting products. It also provided a focus that unquestionably strengthened and should encourage the whole Amiga community. With now over seven hundred software and hardware products available to Amiga users, the machine is clearly carving out a place for itself in the computer world that many believed would never happen.

The Amiga now offers an enormously wide range of possibilities from budget games to the highest technical applications — a range that probably no other comparable computer has ever achieved and which is allowing the fulfillment of its tremendous potential. We hear that the Mount Palomar telescope is now using an Amiga in its astronomical work and among the fast increasing and extraordinarily broad spectrum of subscribers to this magazine, we have just received a subscription request from one of the top scientific governmental departments in the U.K.

Yes, the AmiExpo reinforced the sense that the Amiga dimension has grown to a full international scale. And there is a growing feeling that Europe is beginning to challenge the American leadership, as U.S. companies are becoming aware of the opportunities that Europe, and the rest of the world, presents and as Amiga products of European origin start to make an impact in the U.S.

We saw some interesting examples of transatlantic collaboration. The U.S. company, Aegis, used the Show to launch a German-written game. Abacus, another American company, was showing Germany's Databecker products which it has published in English — and shipped over to the U.K. And in the U.K. itself a games house, Grand Slam, bought the rights to the U.S. written novel "Hunt the Red October", created the computer game and is now successfully exporting the game back to the U.S.A.

It s also encouraging to find that the readership of Commodore Amiga User International Magazine already stretches from the U.K. to Brazil, from Finland to New Zealand, yet more support for the view that — with approaching 500,000 Amiga users worldwide, the Amiga is already one of the few computers to have created for itself a global dimension. **Antony H. Jacobson, Managing Editor and Publisher**

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Cover Illustration created with Sculpt 3D

Telephone 01-278 0333
Editorial ext: 274
Advertising ext: 280/286
Subscriptions ext: 274
Published By Croftward Limited
Finsbury Business Centre
40 Bowling Green Lane
London EC1R 0NE
Distributed by: Comag, Tavistock Road, West Drayton, Middx UB7 7QE
Printed by Chase Printers Group
Typesetting: Carlton Barclay

Amiga User International — an independent magazine for Commodore computer users — is not connected in any way with Commodore Business Machines UK Ltd. It is published 12 times per year by Croftward Limited. The publishers do not accept liability for any incorrect statement or errors contained in material from independent sources or authors which may be reproduced from time to time.

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A New Constellation Is Born

An amalgamation of European and American publishers has produced a new name in software distribution — Constellation Software. The brainchild of Juan Holz and Jerry Wolosenko, it was formed with a view to making programs more universally available. They are currently undertaking a unique program aimed at getting more European software titles to the United States. American distributor response has been very enthusiastic and more than $150,000 worth of wholesale orders were placed for immediate shipment. To sum up Juan Holz said, "Recreational software is a global product. Its international distribution has been limited by misconceptions, ignorance and outright exploitation. Constellation was organized to eliminate those artificial impediments to international trade."

Contact: Constellation Software, 17 Saint Mary's Court, Brookling, MA 02146. (617) 731-8187.

Innovision Show Real Effection

A very exiting new development in Desktop Effects has been released by Innovision. Their VIDEO EFFECTS 3D is said to be an extremely cost efficient alternative to a $50,000 professional 3D effects system. No longer will you have to pay up to $200 per hour to rent one of these machines. All your high quality 3D titling sequences and logo animation for video post promotion can now be done simply and cheaply on the Amiga. The package creates sophisticated 3D effects by manipulating high resolution IFF picture files. Instead of simply transitioning 2D logo screens on and off, as is the case with ordinary 2D effects, VIDEO EFFECTS 3D provides 3D manipulation of text objects. This enables the user to create a new class of effects such as Compress, Zoom, Tumble, Turn and Spin, all with true 3D perspective! Also included are: Moving Shadow Cast and 3D Solid Logo Extrusion. Optional AUTO EFFECTS disks are also planned for the future, which will enable additional miracles to be performed such as Page Peel, Shrivel and other exotic warping-type effects.

Price: $199.00

Contact: Innovision Technology, P.O. Box 743 Hayward, CA 94543. (415) 538-8355.

CSA Worm Their Way In

The first and only Back-up and WORM (Write Once, Read Many) optical disk drives for the Amiga have been released by Computer System Associates. CSA's new tape stream backup systems provide extremely fast transfer (750 kbits/sec) and storage of data from standard SCSI hard drives (75 IPS). They can also be used to transfer little-used files from a hard disk to a CSA removable tape cartridge, thus leaving room for new information and cutting down the number of hard drives it is necessary to purchase. The WORM-800 high capacity Write-Once-Read-Many optical disk drive uses front loading, removable, doublesided optical disk cartirdges to provide 800 Megabytes of inexpensive, reliable and non-alterable storage. It can be mounted internally in the Amiga 2000. Both the Tape Stream Back-up and Optical WORM drives are designed to operate with CSA's SCSI controller card and come complete with their software driver package for ease of operation.

Tape Back-up units start at $1595.00 and WORM — 800 is from $5995.00

FACC II

Amiga Centre Scotland have asked us to mention that the price for Facc II is now only £24.00 inc VAT.

Linel Goes Crack!

Linel the Swiss programming team who created Goldrunner and the brilliant Insanity Fight, (the Oskar winner for the best Arcade game) are finishing a Breakout style game for the Amiga — called Crack. It promises to be a successful as Linel's earlier hits. It will have, Linel tells us, superb background graphics, several modes to choose from including one or two player and battle mode and there is also a choice between mouse and joystick.

One interesting and original idea will be a bonus game between levels. This is a comic-style character called Herbie Stone who has to catch as many coconuts as possible and jump over nasties like snakes. It seems that Linel is planning to include Herbie Stone in many of its future games.

Crack will also include a construction set to produce your own levels, though with a reputed 120 levels already included — possibly, they say, rising to 700 levels — it would seem that Crack will have more than enough to challenge any Breakout addict.

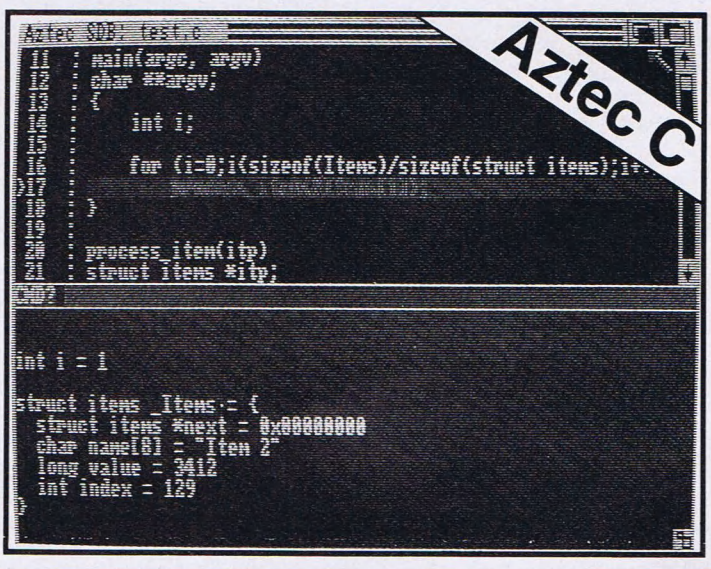
The Next Generation In Debugging

Manx Software have released their latest version of AZTEC C68K for the Amiga. Version 3.6 of this program features their AZTEC SDB source level debugger. It is currently the only C development system with a source level debugger for the Amiga. SDB has been designed for speedy response and ease in debugging. BACK TRACING allows the user to display all active function names and the values of passed parameters. It is possible to examine any variables that are visible from any active function. Command Macros and procedures are supported as are conditional breakpoints. C source and command output can be displayed separately thanks to the use of WINDOWS. TRACING can be done line by line or by function. Other useful features include: Examination and modification of global, local and static variables, structures or expressions by name; the ability to print out structures with elements and their types; and C expression evaluation.

The Manx C compiler runs quickly, writes fast, compact code and is described by Manx as "The most powerful debugger availabe for any microcomputer".

Aztec C68 is available in two different versions: Aztec Professional costs $199 and Aztec Developer £299. Manx are offering SDB for the introductory price of £75 and Library source costs £300.

Contact: Manx Software Systems Inc., One Industrial Way, Eatontown, NJ 07724. 201-542-2121.



Progressive Peripherals and Software have announced the release of several new and exciting products:

Framegrabber

This a real time video digitizer, comprising both hardware and software. Colour or black and white images can be captured from a VCR or home video camera in 1/30 of a second. It supports screen resolutions from 320 × 200 to 640 × 400 and overscan (352 × 240). The hardware has its own power supply and dynamic RAM for storing digitized images before passing them on to the Amiga via the parallel port. Images may be stored either as raw RGB pictures or in IFF format. A Save Frame feature has been included to enable smaller portions of an image to be saved. Multiple exposure mode improves clarity, reduces image noise in static images and can be used to create special effects. Framegrabber may be used with the Amiga 500, 1000 and 2000.
Price: $499.95.

Dr. Term Professional

A professional terminal program for the Amiga 500, 1000 and 2000. It allows Amiga to mainframe communication. Each of the three hundred entries in its internal phone book may have custom communication parameters. Up to 40 different macros may be programmed using the function keys and macro files can be called from the configuration file. Script language is included and allows the user to define and execute a series of commands. The Remote mode, with its multiple level password, acts like a mini-BBS and also allows transferring of files from one computer to another. Dr. Term Professional's emulation capabilities include: VT100, VT52, TTY and Dr. Term Pro. It comes complete with an extensive manual and which covers all aspects of the program, including YMODEM and WXMODEM. Price: $99.95

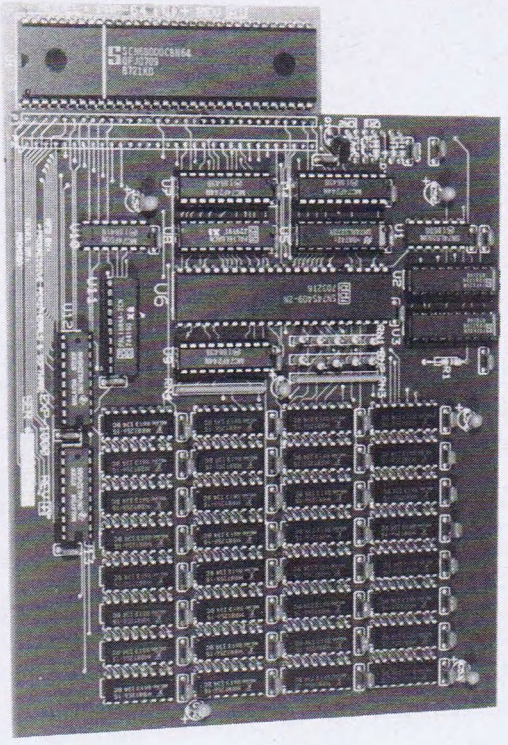
Contact: Progressvie Peripherals & Software, Inc., 464 Kalamath Street, Denver, Colorado 80204. (303) 825-4144.

EXP RAM Expansion Series For The Amiga 500

This comprises the EXP-512, EXP-1000 and EXP-8000+. The EXP-512, expands the Amiga to 1 Megabyte and includes a battery-backed clock/calendar. The EXP 1000 adds 1 Megabyte of RAM inside the Amiga 500, is totally transparent and compatible with the EXP-512. The EXP-8000+ comes with 2 Megabytes of RAM on board, and is expandable up to 8 Megabytes. There is an optional 68010 processor and 68881 math coprocessor. It is compatible with the rest in the range and like the others, is easily installed inside the Amiga.
Price: EXP-512: $169.95
EXP-1000: $399.95
EXP-8000: To be announced.

Progen Genlock

This is a high quality (RS-170A standard) genlock. Its parallel Chromatic Processing is based on custom VSLI chip technology. Foreground Background, Amiga cut and Video in are all software selectable. ProGEN provides composite colour video output and does not distort the Amiga's graphics. It is more than a hobbyist's tool and even the most demanding professional should find it fully adequate for high quality work.
Price: $399.95.



Video Toaster

One of the undoubted stars of the Los Angeles Ami-Expo was Video Toaster, an incredible broadcast quality Genlock and real time full colour digitizer all rolled into one. Two years of development have produced a Desk Top video system capable of creating those weird and wonderful video effects we have all seen on T.V. (You know the type of thing. . . where the subject is wrapped around a ball, squashed and then posted through a letterbox!). Video Toaster enables real time broadcast quality video effects such as: Page flips, turns, Spheres, Montage, Pushes, splits, transpositions, blinds, Pixelizations, Fish-eye and much more. It can capture and display full colour video images at 60 times per second and supports all of the Amigas graphics modes including HAM and half-bright.

NewTek are also working on a number of add-ons for the Video Toaster which should include: Real-image processing support, TMS 34010 video co-processor, Chroma-key, Professional paint program and Programmable video switcher.

Contact: NewTek Inc., Topeka, Kansas 66603.

Virus at Ten

The Virus on the Amiga has reached such proportions that it has now received national coverage on U.K. TV's News at Ten. For those of you who did not see it, there was a short explanation in very simple layman's terms of how it works. It was referred to as "High Tech vandalism". Reporter Lawrence McGinty treated us to a "reconstruction" of an extremely shady-looking character placing a disk into an Amiga in a shop with the intention of spreading the virus. Interestingly, Tony Deane, of Silica shop was heard to say in an interview that for a shopkeeper it is "quite a serious problem." He says that "He's got a lot of software on the shelf that's cost him a lot of money and as soon as he gets a computer that's got the virus, that can infect one of his disks and that can then be transferred to his other shop stock. So he could end up with thousands of pounds of software being wiped out." — Hasn't anybody told Tony that the virus cannot penetrate plastic packaging? Always buy software in its original wrapper. This is the best assurance of its new condition. We were amused also, to hear that engineers at one of the biggest distributors of the Amiga "have devised a virus killer program." Could this have been promoted by the overwhelming response to our own Virus Killer offer? Remember where you saw it first, folks!

THE AMIGA CENTRE

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Robtek and the Amiga

Robtek has announced the release of four games on its Diamond Games Label. Diamond Games says these are some exciting new titles to add to its range.

Champ is a fast-moving and realistic boxing game featuring the most "spectacular computerised fightes ever seen". Atmosphere is created with some authentic noises and sounds — (grunts and punches so audible, Robtek says, you can almost feel the sweat!).

For added interest the player has a choice of four competent fighters of varying weights, from macho to exceedingly macho!

Continuing on the sport side, Diamond Games are releasing Crazy Football. This is an arcade game in which the player has to kick four footballs out of a tricky maze — simultaneously. With only one pair of legs Robtek reckons this is something that's going to require more than just a bit of practice.

Pinball is an old favourite of which it seems no one ever tires. The pre-runner of all arcade games, Robtek's version faithfully re-creates the original.

Starways is said to be a game for the quick of mind andnimble fingers.Join in a hyper-network of space; dodge your way around the disappearing track and somersaultover the bottomless pits. Starways features 21 levels of action.

One other Amiga title from Robtek is to be released on its budget label, Kingsize Games.

Nakamoto is an arcade platform game with 55 levels! In this game you are a Chinese man with a mission — albeit a very strange one — that is to collect as many pieces of junk as possible. The package also includes a **free** construction set.

Nakamoto will be available at the budget price of £9.95.

Communicate's C-Fax

A U.K. company, Communicate, has developed a product which moves the PC and fax markets a step closer together.

The C-Fax comes in two versions. The more higher level option (£1,195) features an additional port for interfacing with a low-cost dedicated facsimile machine, enabling the PC to use the fax machine as a combined printer and scanner.

The link to the card is modem style with a telephone jack rather than the normal RS-232 method of interconnection. The basic model without the extra port will sell at £995.

Communicate claims that C-Fax will come with software which allows it to operate in true background mode. Early versions of other fax cards had to use Softlogic's DoubleDOS utility in order to achieve background operation.

C-Fax software should also allow users to 'hot key' out of an application in order to compose and send a fax. Faxes can be created from files produced in a variety of ways, using input from word processors, graphics and desktop publishing packages as well as scanners.

Machine Vision

Machine Vision, in which a video image is examined by complex digital circuits to recognise shapes and patterns and make decisions on production lines, has been taken a step further by US company Cognex of Needham, Massachusetts.

The company has designed an application-specific integrated circuit (ASIC) that carries out a number of processes in machine vision which would otherwise need nearly 100 off-the-shelf chips. It also loads at three times the speed and about a tenth of the cost of the equivalent conventional circuits of Cognex's current machine vision products.

The company will incorporate the chip into its next generation of systems and will also be making it available to other system manufacturers. Advantages are higher preformances, lower cost and more compact equipment.

A Reason To Write

The latest offering from The Other Guys is REASON, a program designed to aid writers and editors. It will proofread text and analyze its style and prose. The program refers to its large database to spot any irregularities in the text. Your document may be categorized and then compared with similar reference files, checking for readability and sentence characteristics. Reason will suggest improvements to your writing when/if it considers it to be appropriate. The Word Analysis section of the program will check your offering for sexist terms, acronyms, abstract words etc. and the proofreader will warn you of any double words, spelling errors, split infinitives and so on. Price: $395.00

Contact: The Other Guys, 55 North Main Street, Suite 301-D, P.O. Box H, Logan Utah 84321. (800) 942-9402.

Epyx At War

U.S. Epyx Gold in conjunction with Epyx have produced two new battle simulations for the Amiga; DESTROYER an action/strategy game set in World War two, where you are in command of a fully-armed, U.S. Navy destroyer. The game requires you to master not only the navigation and control of the bridge but also the various weaponry on board.

SUB BATTLE SIMULATOR, on the other hand, gives you that chance you have always been looking for the captain one of the six U.S. Navy submarines or German U-Boats during any year from 1939 to 1945. Each vessel is unique and painstakingly authentic, so there is a great deal more to the game than simply charging into battle. Every aspect of underwater warfare has to be considered, from navigation to depth charges, to weather and repairs.

Both games represent a real challenge to the 'Wargames enthusiast'.

Price: £24.99 each

Contact: U.S. Gold Ltd., Unit 2 & 3 Holford Way, Holford, Birmingham B6 7AX. (021) 356-3388.

Logic bomb charge fails to go off

A consultant accused of planting logic bombs in a company's computer was freed when the judge ruled he had no case to answer.

James McMahone (32) from Watford, had pleaded not guilty to four charges of criminal damage and one of attempted damage, to disks and systems owned by Pandair Freight.

The trial made legal history as "the first case ever prosecuted in the Crown Court in which the act of criminal damage is alleged by the insertion of a code into a program and a disk", said David Radcliffe, prosecuting.

The judge, Derek Holden, however said the evidence was unsatisfactory. He directed the jury to acquit McMahon.

The court heard that in 1985 McMahon was employed by Pandair Freight to write file handler software for use on its Dec PDP-11 computers.

He was alleged to have coded in three logic bombs, either for revenge at losing a contract for a system at a different company, or as a means of keeping his company regularly employed with maintenance work.

The first bomb went off at Heston on 7 January 1986 causing the computer system to work on only four of 20 terminals.

"After four and a half weeks in court, it had been established that there were only two people who had the technical ability and the user-specific information about the victim's computer operations to have bombed the computer, the defendant and the chief prosecution witness," said defence barrister, Alistair Kelman.

The virus presently causing concern in the Amiga software is a form of logic bomb.

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With the Superbase Professional Forms Editor you can create custom applications relating multiple files. It is a unique graphic design tool used to create forms using patterns, lines, boxes, text fonts, graphic images and fields from any file – in colour. Superbase Forms possess the intelligence to generate linked records, then retrieve and display them automatically without any programming. It is the ideal developers tool.

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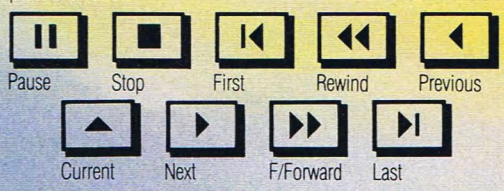
An integral text editor allows a mail merge interface to the database and the ability to link text files to records. The Superbase text editor allows you complete freedom to use any amount of text within your database files or can be used simply for your day to day correspondence and typing requirements. Superbase Professional can search any ASCII text file even if it wasn't created by Superbase.

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Minimum System Requirements
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1 floppy disk drive 512K RAM (1 megabyte recommended)

Price: £249.95 (inc VAT)

Registered users of Superbase Personal write for upgrade price and procedure.



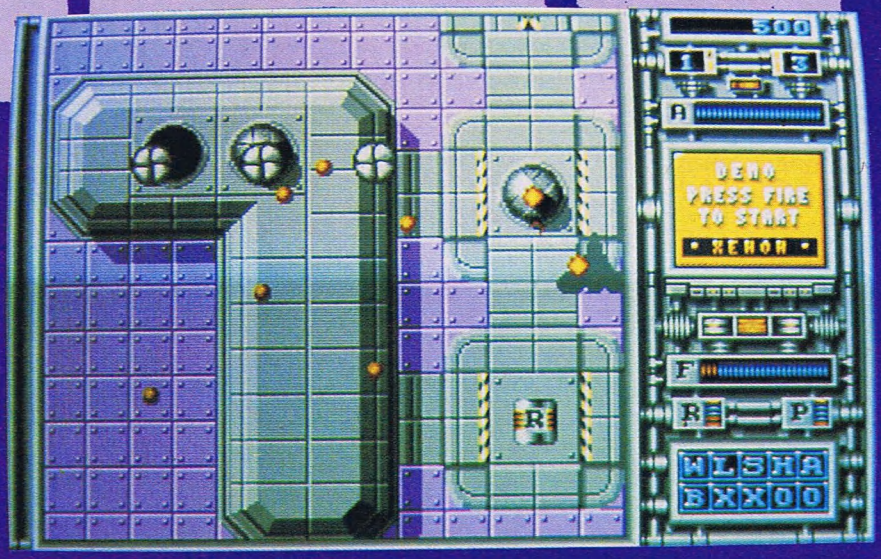
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Tel (01) 330 7166, Fax (01) 330 2089, Telex 8955021 PRECIS G.

XENON

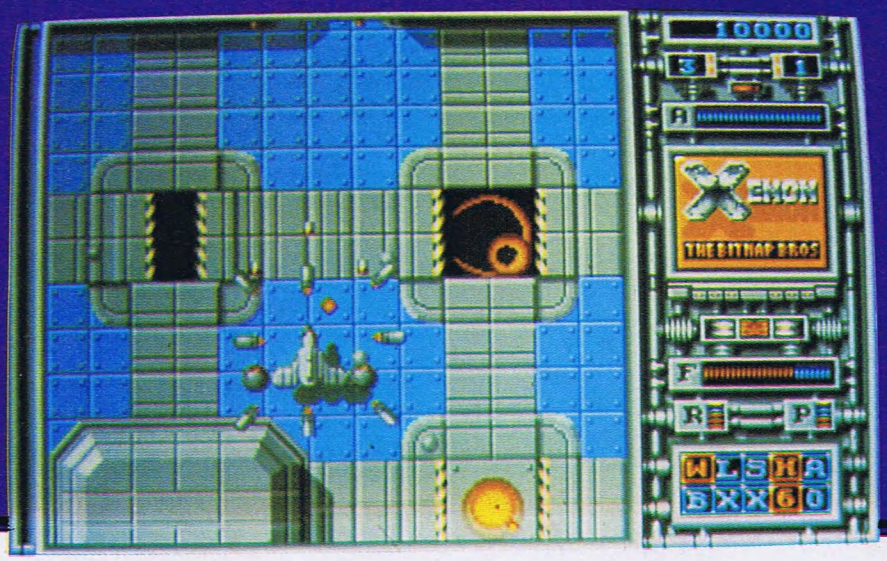


It's hard to beat a good blaster, and this one will be especially difficult to beat. Xenon is the first game to be released on the Melbourne House 16-bit label, and is everything a first release should be.

Xenon is by no means original, and takes elements from most vertically scrolling space games, with just a few new ones. The basic idea is to negotiate four levels of nasty alien beings and machines of progressive difficulty.

Select one or two players and the game can start. As with most games of this type, a status panel to the right keeps track of score, fuel etc., with a VDU in the centre. Before the action gets underway, the VDU zooms in on a robot-like man who announces "Sector One", and does the same for each of the other sectors. The digitised graphics are very smooth, and the sampled voice, although quiet, gives excellent first impressions.

Your craft has been designed to be adaptable to its surroundings, and can transform from a land-based vehicle, to a more conventional space ship. As you would expect, its weapons are basic to begin with, just a single cannon. Blasting a few rotating gun turrets soon earns you more fire power in the form of wing-mounted cannons. Apart from the usual bas-relief landscape and aliens, there are some harmless looking ladybirds that absorb a shot before dying. This first level has some very impressive effects, such as the explosions, and the guns that rise up out of the ground.



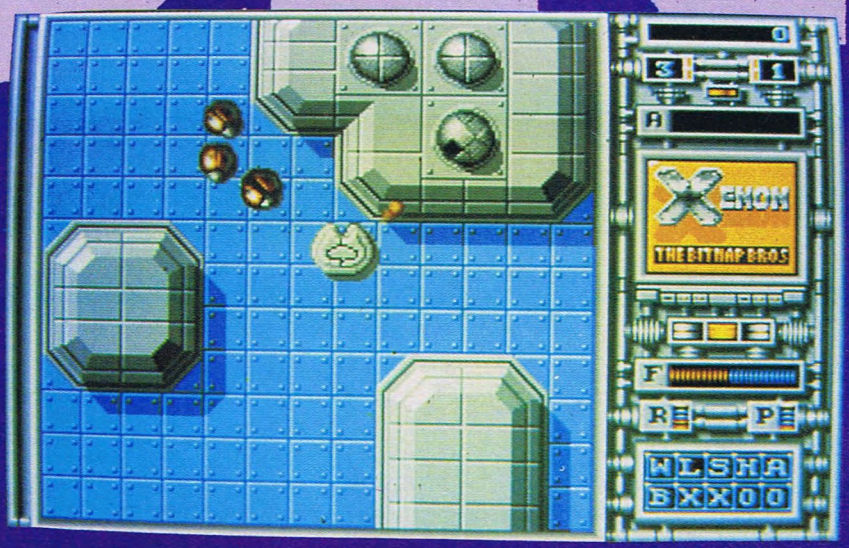
"This first level has some very impressive effects, such as the explosions, and the guns that rise up out of the ground"

Your weapons are not limited to wings; super lasers, shields, homing missiles and up to three balls that follow you about zapping everything in their way are all yours for the taking. With a bit of practice, you could have most of these throughout the game.

When the half way stage is reached, a mothership has to be continually zapped in its weak

ION

Melbourne House



spot until it blows. Another has to be dealt with at the end of the level. The level one motherships lack a bit of imagination, but consequent ones get bigger and better. There is a change of scenery in level two as you're confined to spaceship mode. Flying through a dark tunnel, avoiding the sides, the aliens get a lot tougher, perhaps a bit too tough, but they also get more detailed. Not only are they bigger, with more powerful guns, but they take a good amount of laser fire to destroy.

Sector three returns to the style of the first level, and the final sector is similar to the second with complex metallic ships replaced by slimey blobby things.

Its difficulty seems just about right to keep it challenging, whilst avoiding too much frustration.

Getting through the sectors is going to take a while, but should still hold your interest long enough to keep you trying. The game isn't without its faults, playing through the first level each time can be a mite tedious, and a bit more weaponry at the start of the second level would have been useful. Changing between the two ships can be done by pressing the spacebar, but most people will opt for a quick wiggle of the stick in the same method that proved so popular in Wizball.

David Whitaker has done a good job with the music. The samples he has used don't overshadow the game, but play along nicely in the background.

Xenon does have the odd annoyance, such as when the ship transforms when you're simply wiggling the stick to avoid the flak, but in general is great fun. Graphics, sound and gameplay are all very good, and it is very reasonably priced at £19.99. If you haven't yet got a scrolling zapper in your collection, Xenon is the one to go for at the moment, and even if you have, I'd still recommend it as one of the few games that has reached a true 16-bit level in design and quality.

Price: £19.99 The Bitmap Brothers

T.H.

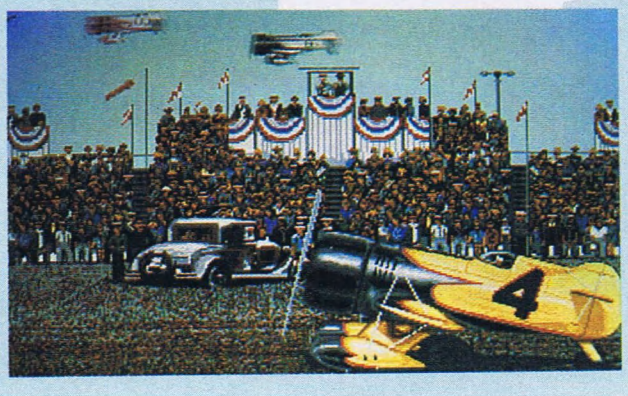
(PAGE 40)



Graphics: 9
Sound: 8
Playability: 8
Value: 8

Gee Bee Air Rally

Activision





3D car race games have been around in arcades right from the start, the very simple Night Driver being the first I remember. Although games have become far more impressive since then, the basic idea of driving along a winding road at high speeds has remained just as appealing even now. Gee Bee Air Rally continues the theme, but replaces cars for light aeroplanes.

On loading, the player is greeted with a well drawn picture setting the scene, and accompanying music with some original sounds. One more piccy later, the game can get underway. That is, after one of three skill levels has been selected. Each event is played against the clock and other planes, and takes place over a large desert.

The view is from behind your plane, in the popular 3D style. Air Rally differs from any similar car game in that you can fly up and down as well as left and right. When at its highest point, the plane will be flying slowest, and at top speed when flying low. This means that dodging rival racers isn't as easy as just flying over or under them, and gives the game a new gameplay element not found in such car games.

A number of opposing planes are raced against over conventional courses, with the odd variation on the theme.

As well as the music, samples can be heard throughout the game to give it a more realistic feel. Luckily, your pilot is equiped with a parachute in case of emergencies. In the event of a crash, you are shown the pilot floating down the earth, followed by one of a few embarassing landings, be it in a pig sty, or in the middle of a sun-scorched desert.

Gee Bee Air Rally looks to be a very promising variation on a proven theme, well worth keeping an eye out for.

DIGIPIC

Video Guru Bill Hardwick grabs a picture or two with JCL's new fast video digitiser.

When I receive anything new for my Amiga the first thing I want to do is connect up and have a try and manuals like the one which comes with the Digipic video digitiser get you off to a good start. Page 1 is entitled **IN A HURRY?** and gives just enough information to get you started, although whilst connecting the 9" x 7" x 3" Digitising box to my Amiga I was puzzled to see two plugs at the Amiga end of the 18" ribbon cable. After checking the manual I discovered that these allow the unit to plug into the 1000, A500 or A2000 Amigas, a nice touch which keeps the unit compatible with all models.

Page 2 is **WHAT YOU WILL NEED** and tells us that 512K of memory is the absolute minimum. After connecting up the digitiser to my Amiga I found that the drop down menus in the software were blank. A few minutes of trial and error found the problem. It seems that to use the system with only 512K I had to remove my external disk drive, as the memory it used (20K) did not leave enough room for the digitising software to function correctly. Being restricted to one drive, however, did not cause too many problems as the software is memory resident and has an easy to use Projects Menu. This reduced the need for constant disk changes but did mean some functions were limited in use.

I was using a Panasonic CCTV camera, which has given me very good results with other digitisers. Be warned - the type of camera you use for digitising **WILL** effect the end result.... sometimes dramatically! It wasn't long before I was able to produce some very good pictures in 16 shades of grey which, using the extensive menus, could then be easily manipulated giving a wide variety of effects.

One particularly impressive feature is the LOOP function. This allows focussing of the camera and positioning of the picture whilst Digipic rapidly digitises/displays/digitises...

There is a separate piece of hardware that comes with the digitiser, the EGSA (Extended Grey Scale Adapter) which when connected between the Amiga and the Monitor/Modulator extends the grey scale from 16 to 32 shades. This increases the quality and apparent resolution of pictures considerably BUT only if the EGSA is connected both for digitising AND the displaying of pictures. Unfortunately this means that you can't give a copy of your latest picture disk to a friend if it has been done using EGSA.

The 50-page manual is well written and as well as sections on how to use the tools and options, contains a section covering the technical side of the digitiser, including instructions on how to make fine adjustments to the incoming video signals. Apart from its lack of a proper index it is easy to read and gives a wide range of ideas and suggestions for the use of pictures, everything from filing systems to cartoons.



Having used the Digipic digitiser for some time now, I would imagine that for someone who does a lot of graphics work and/or Desktop Publishing it would be a very useful piece of equipment. It is well constructed, easy to use and can produce some very pleasing results when using the grey scale. I do feel that the colour pictures it produces are not quite what I would expect from a digitiser costing over £300. However, it will grab images very quickly and allows pictures to be taken from 'live' video without any sign of motion blur etc. This in itself goes a long way towards justifying the cost.

To give you an idea of how fast it is I connected a video player instead of a camera and was able to grab pictures whilst the video was playing. Depending on the amount of memory you have available the Multi function allows the capture of several images in sequence which could be the basis of some interesting pieces of animation. The Multi function is also used for colour digitising which works by taking three shots of the same picture using the Red, Green and Blue filters to build up a colour image. The resulting picture is reasonably good but does not begin to compare with a good digitised HAM colour picture.

The Digipic software comes on one disk which is not copy protected and the manual advises making a backup copy for general use. (This is good practice for any software). The disk is self booting and when loaded the program contains a large variety of options for producing pictures, altering contrast and brightness, changing the grey level threshold, in fact a very comprehensive set of features for the manipulation of the digitised images (some interesting effects can easily be created). Using some of these features, pictures can be adjusted to obtain the best results with a dot matrix printer, although as there is no printer option in the program, this can be rather time consuming as you would need to alter a picture, save it, load a paint program and then print the result before you could see if further adjustment was required. It would have been useful to have a printer option as the program could then be used without connecting the digitiser and various options tried straight to the printer to see the effect, which often looks different on paper. One function I particularly liked was the Frame and Save combination which meant I could clip and save just a part of a picture and as each full screen picture can take 20K to 40K the disk space saved by just using clips of a picture can be considerable.

B.H.

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Contact: Precision Software Ltd, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ.
Tel: 01-330 7166.

RUBY-COMM

by Y2 Computing Ltd

Computerised Communications offer tremendous advantages over conventional link-ups. Here Andy Eskelson examines Y2's Rubycomm package.

Communications between computers is probably the fastest growing areas in the world of computing. The Amiga has built-in facilities for communications but like many such things they are very simple and do not allow the error correction and display modes that are used by many of todays database and bulletin boards.

To meet this wide range of requirements Y2 Computing have produced two packages, Ruby-View and Ruby-Term, known collectively as Ruby-Comm. The general layout of the two programs is very similar to the normal Amiga pull down menus and requesters. The Ruby-View program is intended for use with VIEWDATA i.e. Prestel type databases. This gives the user easy access to the graphics and functions of the viewdata type databases. There are four different display sizes ranging from bijou (approx ¼ screen) to full screen, the bijou size is a bit hard on the eyes, but it does enable you to get a good idea of the screens contents. Editing is supported via a separate screen with its own pull-down menu this is very easy to use, as all the main functions like colour changing and graphic modes are activated using the function keys. Graphics are very simple on viewdata, very much like the teletext system, where each character cell is divided into six pixels and various combinations of these six pixels can be printed. To make things even easier you can use the mouse to draw at this resolution so designing your own frames is very easy.

While online you can save frames to the disk by name or they can be sent to a "log" file, the advantage of which is it's speed, only taking a couple of seconds to save the frame. It is also possible to save the edit window which is very fast, and modifications can be done while online by using the edit window. Another function that makes life easy it the "grab" function, this enables information to be moved via mouse, between two windows.

"I could edit and sort out into various sub files the frames, and ditch the frames I was not interested in."

All in all Ruby-View is a very nice package that is easy to use. A few problems exist with the package, the most serious is that when sending from the edit window the transfer rate is EXTREMELY slow, so slow that it is possible to out-type it! This makes for extended on line time, and Y2 need to get this problem sorted out. The other problems are purely personal and are about the log files and the save frames function. I would have liked to see a slightly improved system to allow the transfer of frames to other log files and discreet saved frames, and vice-versa, my idea was to go online and snatch any mail and frames that I wanted and put it into a log file, then when offline I could edit and sort out into various sub files the frames, and ditch the frames I was not interested in. Very minor, but it would have put the icing on the cake for me. The last problem is the manual. Not too bad but it is rather messy and not very well laid out. Finding the # and * keys were a bit of a problem as these keys are used for number entry and the return keys. Y2 have implemented these keys as the * and — keys on the KEYPAD for the * function and the + and ENTER keypad keys for the # function. This info was buried deep in the manual and was overlooked several times!

Ruby-Term is the program that allows access to scrolling type databases and allows the user to upload and download files using two of the most common protocols XMODEM and KERMIT (and it wasn't named after the green frog) Saving and loading is easy and functions without any problems, in fact Ruby-Term is so easy to use it's a bit of a problem to describe it! What better praise can be given to a program.

Built into Ruby-Term are VT100, VT52 and standard ASCII terminal emulators. These provide compatibility with just about every database about, and also make it possible to use the Amiga as a dumb terminal into another system. VT100 is by far the most common terminal, and Ruby-Term emulates this type faithfully without any apparent problems.

"The modem configuration needs to be performed once, so that the programs know how to drive your modem."

Finally there are a couple of files that are common to both Ruby-Term and Ruby-View. They are the directory and directory editor, and most importantly the modem installation program. The directory holds the number and the type of service and also the setup needed for the service, including any logon strings. As you would expect the directory editor provides a means of adding to the directory or deleting/modifying the directory entries. A little more thought could have been put into the operation of this program, but it is easy to use and would probably only take the average user half an hour to find out its idiosyncrasies. The modem configuration needs to be performed once, so that the programs know how to drive your modem. Drivers for Hayes, WS3000/4000, Tandata TM512, DaCom AA-

AD modems and Manual modems are already set up, and instructions are given on how to create a driver should your modem not be compatible with one already catered for.

In all a very nice package but it is rather pricy perhaps at around £170, and for that sort of price ticket I would expect a package with many more features. At least the disk is not copy protected, but uses a dongle plugged into the joystick port, a much more sensible form of protection.

A.E.

WS 4000

Modems come in many shapes and sizes nowadays, and the range of intelligent modems is growing all the time. Miracle Technology have produced several modems, themost famous are their WS series and the C64 Multimodem. It is a logical progression that they should enter the field of intelligent modems, and they have done so with the WS3000 and WS4000 models. The WS3000 is the full spec version and is a large outlay at over £750. A more reasonable entry point however, is the WS4000, this is a cut down version of the WS3000 but it CAN BE UPGRADED to the full V22bis standard. The WS4000 starts at about £190 and is standard V21/23. Thas is 300/300, 120/75, 75/1200, 1200 half duplex and 600 half duplex. Both orginate and answer modes are available. The way the modem is controlled is rather strange if you have never used an intelligent modem before, because the modem has no switches on the front at all, instead the modem is controlled by the terminal issuing special control characters.

To control the WS4000 the Hayes AT command set has been implemented which simply means that you prefix a command to the modem with the letters AT, so to dial a number you would send the command ATD123456 cr to the modem, the same is true of all the commands. Another function that the modem has is speed buffering, this is very nice if your terminal or computer cannot support the split speeds of services like Prestel. Simply stated it means that the outgoing transmission at 1200 from your terminal will be converted to 75 bps by the modem.

Upgrading the WS4000 is more expensive than buying a WS3000 and it also has the be done at the factory. Upgrades available are: V22, V22bis, Battery backed name and number store, Bell standard, Audio call monitor, Process control port and DTMF (tone) dialing.

This is a really superb modem and I cannot find any fault with the operation at all. The handbook is very well presented, and even though the Hayes command set is not the simplest of systems to explain, the handbook does a good job. Quick startup guides and examples are provided at the start of the book and troubleshooting guides at the rear, well done Miracle! Nice to see a well produced manual for a change. I have only one very minor grumble about this modem, and that is the lack of an on-off mains switch, the WS4000 has an external power unit and the only way to turn it off is to unplug it.

A.E.

QUATTRO

A new and rather expensive modem... and an established modem with an upgrade... but are they value for money? ... Andy Eskelson finds out.

The Quattro modem by Dowty Information Systems is a professional grade modem, with multi standard operation, and at over £750 it is one of the most expensive modems on the market today. What you get for that much money is a V22bis modem (full duplex at 2400bps) as well as V22, V23 and V21. It is a self contained unit, including the power unit, so there are no "bricks" to trip over, and it is housed in a robust metal case.

There are several switches on the front panel allowing the control of the audio dial, test functions and off/on hook function. The unit has a 20 number store that can contain the number, name and if any, the logon string for each number. There is a way of hiding the number and logon string, for security purposes. Like many modems the Quattro uses the Hayes AT command set so it is compatible with many of the software packages now available. In addition the Hayes system, a second command language is provided, this is the Steebek system. It is not as comprehensive as the Hayes system but it is very much easier to use, and I would recommend that the first time user make use of the Steebek system as a means of getting online if he does not have a Hayes compatible communications package.

The Quattro provides a few unusual functions that are worth considering, the first is the ring back. If you set up a link to a remote computer, a simple way to improve the security of the system is to hang up and then the other end of the link rings you. Well the Quattro can be set to do this automatically and it works very well. If the number called is busy the Quattro can also be programmed to dial a secondary number, again this is very useful. Four numbers can be programmed to be dialed from the front panel buttons, this is useful if you want to contact a remote site and you have not got an asynchronous terminal. Now comes the big problem with the Quattro. It has a number "blacklist". If a number is engaged or unobtainable five times then the modem locks out that number for FOUR hours! (pressing the data button will reset the blacklist, but it is a pain). To help give error free communications a built-in error corrector can be activated, and when connected to a similarly equipped modem at the far end of the link, any corrupted data will be automatically retransmitted. This is very useful when you get a noisy line!

The Quattro can operate both synchronously and asynchronously and there is provision (on a 3.5mm stereo jack) for a simple asynchronous command terminal. All functions can be permanently locked out to prevent tampering. This is a professional modem, and gives a good range of facilities for its price, and apart from the blacklist problem, performs excellently. The handbook is well produced, but lacks a few examples that would make life easier for the new user and it is a bit of a problem finding the information you want, a good index would improve the handbook no end. The handbook lists some additional commands the best of which is a help page. This gives a summary of the commands and does make up to some extent for the lack of an index, but it's not much use if you don't have a terminal attached to the modem!

A.E.

LINT

Remove the 'fluff' from your C programs... Richard Franklin puts LINT through its paces

Lint for the AMIGA is a 'C' programmers' utility that allows you to check your code thoroughly for any possible errors that may occur and that will not be picked up at compile time.

In the K&R 'C' programmers' bible, the name LINT is suggested because of its ability to 'pick bits of fluff from one's programs.' You run LINT on your source files as though you were compiling them and LINT in turn displays error, warning, or informational messages about certain inconsistencies found within your source.

LINT for the AMIGA, allows these messages to be re-directed to a file for subsequent perusal if so required. The list of messages provided by LINT is very large and covers anything that could cause problems with a program. One of the nice features is the ability to check on the embedding of source. For example:

```
if (fail)
        if (OK)
            Do_Something ();
else
.....
```

When looking at this example one would expect (and maybe it was intended) that the 'else' statement should belong to the 'if (fail)' statement. But when compiled, the 'else' will be associated with the 'if (OK)'. LINT for the AMIGA picks up this error with a message saying that there was a negative indentation. This example is possibly the most common error made by 'C' programmers (I've done it myself many times).

In total there are 155 messages possible from LINT (74 errors, 56 warnings, and 25 informational messages). There are also some internal errors that are there but should never be encountered with the possible exception of 'Exceeded Available Memory'. This error will occur if there are too many files being processed in too small a memory (I did not see this message as I have a 2Mb expansion). LINT for the AMIGA supplies a way of getting round this by allowing the user to pre-process the separate files and then run a final pass over them all.

LINT also has numerous options available that can be specified within the command line, in a '.LNT' command file, or within the source code itself. These options range from specifying the format of the messages to disabling parts of the error checking. You can specifically disable (or enable) any message or any group of messages to your liking. For example when I first ran LINT on my program, I was inundated with the message:

Warning 544: endif not followed by EOL.

"You can specifically disable (or enable) any message or any group of messages to your liking"

This was due to the fact that all of the header files for the compiler I use (Lattice V4.0) have a comment on their £endif statements to let the user know to what it is associated. To disable this message I just had to add the option -e544 before the files.

I said that options can be within the actual source code and this is done by putting them inside a comment. For example:

```
/* lint -e544 Turn off endif warning */
```

This is very useful if you want to disable or enable part of the checking for a specific piece of code. You would put the disable before it and then the enable (+) after it thus:

```
/* lint +e544 Turn endif warning back on */
```

LINT comes on a single unprotected disk and contains two program files: 'lint' and 'pr'. 'pr' is a utility which prints a specified file to the PRT: device with each line preceded by its line number. Useful, as all messages from LINT specify the line number of the file and display the actual line.

Other files on the disk are examples of bad code to show how LINT works. Also there are stlib files for both the Lattice and Manx compilers.

The manual is ring bound in a sturdy cover and lists and explains all messages and options clearly.

"I will be making regular use of LINT for the AMIGA from now on"

If all AMIGA programmers were to use this product we would see fewer GURU messages and enjoy using our machines more. I can find nothing wrong with it at all and the ability to disable messages that could be produced just because of your programming style is a boon. I will be making regular use of LINT for the AMIGA from now on. I only have one little gripe and that is due to the fact that I use Lattice V4.0. Lattice 4.0 has the ability to read compacted source and header files. Unfortunately LINT can't. To me this was annoying as when my AMIGA is first booted in the morning I transfer all compacted header files to VDO: (recoverable RAM drive) for speed of use but LINT could not read them so I had to redirect the include files to floppy disk (which is much slower). All in all though, this is an excellent product and should be of use to all (even the most experienced) AMIGA 'C' programmers.

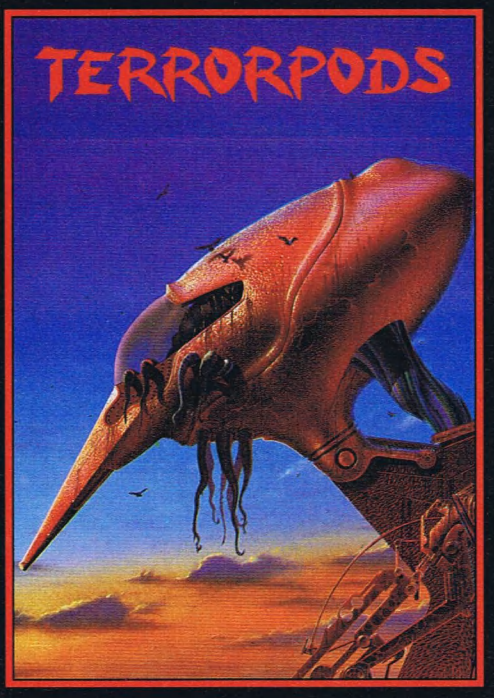
R.F.

Price: £110 + VAT

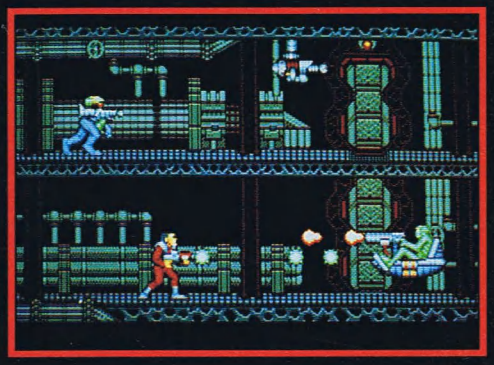
Contact: (U.S.) Gimpel Software, 3207 Hogarth Lane, Collegeville, Pa. 19426. (215) 584-4261.

Contact: (U.K..) Graymatter, No 2 Priggmeadow, Ash Burton, Devon TQ13 7DF. Tel: 0364 53499.













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Its been a long watch . . . As the sun disappears over the horizon, the uninviting, grey bleakness of Colian becomes apparent. Following the intense heat of the day, the onset of night adds the bitterness of sub-zero temperatures to an already hostile environment, and the stark interior of the D.S.V. appears almost homelike.

Deep melancholy is suddenly smashed by the shrill scream of a siren. The status panel has gone crazy, an extraordinary array of lights flash uncontrollably, Good grief . . . what's happening?

Frantically, you turn to look at the command scanner, hunting through the mass of information before you, in a desperate attempt to decipher what has happened.

Your whole being freezes . . . It can't be! The Terrorpods . . .

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PSYGNOSIS



John Walker tests an outstanding new software package that fully lives up to the 'only Amiga makes it possible' tag

The Director will not turn you into another Alfred Hitchcock or Steven Spielberg but it will help you to produce dazzling slide-shows and animations. The process, though, it much closer to that experienced by a scriptwriter than an all-powerful director. There is a lot of sweat and re-writing involved.

The program's unique approach accounts for both its strengths and its weaknesses. The plus factors are that you can create more detailed displays than with rival programs and that these eat up less memory. The real joy is the way displays can contain several different simultaneous animations, something that is hard or perhaps impossible to achieve with any other desktop video package.

The Director can use any image in the IFF format, which means it is compatible with Deluxe Paint and the rest of the Amiga's art programs. It can also play back animations in the ANIM format, such as those created with Aegis' VideoScape 3D. It contains no fonts for titling but can use the Amiga's standard fonts or any compatible ones. These can



be displayed in any colours — though the number available will depend upon your machine's memory — and in bold, italic or underlined styles. You can create shadowed text by adding to the original text the same words offset a pixel or two in a different colour. The program will work in overscan mode, which does away with the border around the screen, for re-cording the results on video-tape.

Its sound module is compatible with IFF standard instrumental sounds

Many different effects, such as Wipes and Dissolves between pictures, are possible and you can also produce lines, outline and filled circles, ellipses and rectangles. Sound can be added to your displays, although no effects or music are included with the program, which comes on a single unprotected disk with a good manual. Its sound module is compatible with IFF standard instrumental sounds.

The down side is that The Director is far harder to use and takes much longer to produce good results, than rival packages. Once you are familiar with its methods, you can reach a reasonable speed but the learning process will be a slow one for most people.

The Director does not use the Amiga's friendly point-and-click method of accessing a program's functions. Indeed, it doesn't use the mouse at all. There are no icons, no pull-down menus, not a sign of Intuition, for The Director is not so much a program as a display and animation *language* that is used from the CLI rather than from the Workbench.

The BLIT command transfers part of a picture from a buffer to the screen. As a result, you can load one picture contaning many different images and display them on-screen separately, a technique which uses much less memory than if each image were loaded on its own. For animations involving page-flipping, you can store a complete sequence of images in one buffer.

If you wanted to show the pictures in an endless loop, you would add a line number —say, 10 — to the first command

The BLIT command can be tricky to use, since you have to specify the co-ordinates of the image you wish to transfer as well as its screen co-ordinates. The Director includes a utility to help you work out these but it is still an involved process. It is simple, though, compared to using the BLITMODE command to achieve special effects using the blitter. That involves understanding binary logical operations and binary arithmetic.

The Director lets you read and write to and from disks. By this

method you can set up interactive programs. You could even use it to write an adventure with animated graphics. It is a boon for those with 512K Amigas who want to create text displays. In rival programs, each screen of text is saved separately and thus occupies a considerable chunk of memory. With The Director, text files can be read into the program when required, thus taking up very little memory.

At its simplest, a program written with The Director would read:

```
LOAD 1, ":pics/gorilla"
PAUSE 60
LOAD 2, ":pics/KingTut"
DISPLAY 2
PAUSE 60
LOAD 3, ":pics/SachsCastle"
DISPLAY 3
PAUSE 60
END
```

The numbers 1, 2, 3 refer to the buffers into which the pictures, held in the directory "pic", are first loaded and then shown on the screen. The command PAUSE 60 keeps a picture displayed for six second. If you wanted to show the pictures in an endless loop, you would add a line number — say, 10 — to the first command. Then you'd substitute for the END command the line GOTO 10, just as in BASIC.

Anyone familiar with BASIC will feel at home with The Director's language, since it resembles a subset of BASIC, complete with GOTOs and GOSUBs. There are around 80 commands to learn and ue. In order to create a display you simply (or, maybe, not so simply) write a program with a text editor, rather than with a word processor, which is liable to use confusing control codes. The Director's manual suggests using the Amiga's clumsy ED or MicroEmacs which is included on the Extras disk but any will do. There are several available, including a couple of public domain disks. I used CygnusEd, which is both cheap and good.

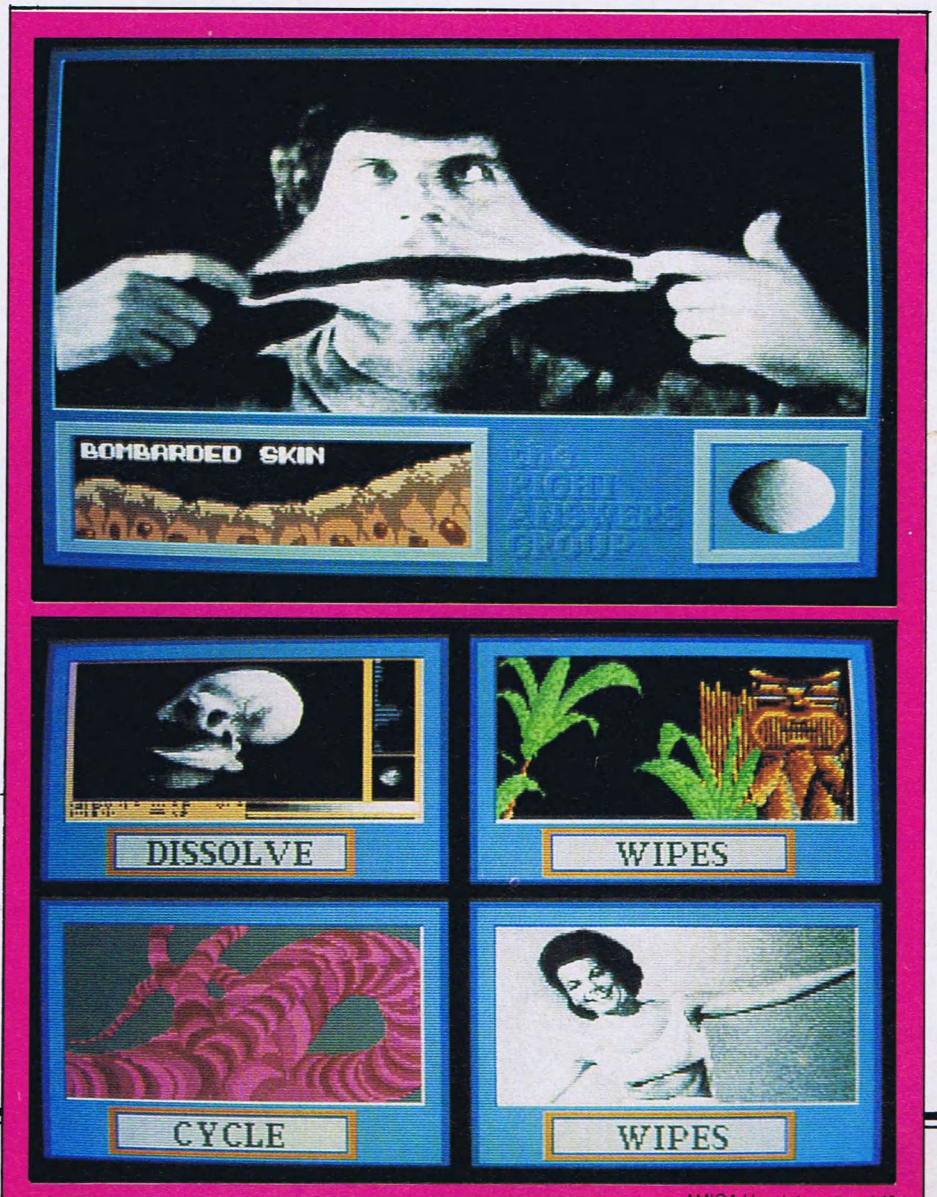
The Director's BASIC-like use of variables and mathematical functions gives it great versatility, at the expense of ease of use. To create a circle you don't draw one on screen, as in a graphics program, but use a CIRCLE command followed by three co-ordinates. Likewise, to put text on-screen you use MOVE and TEXT commands, so that an understanding of screen co-ordinates is essential to mastering the program.

The Amiga's blitter, which can move chunks of memory around very quickly, only works on the computer's 512K Chip memory so that it is best not to clutter up the Chip memory with stored graphics

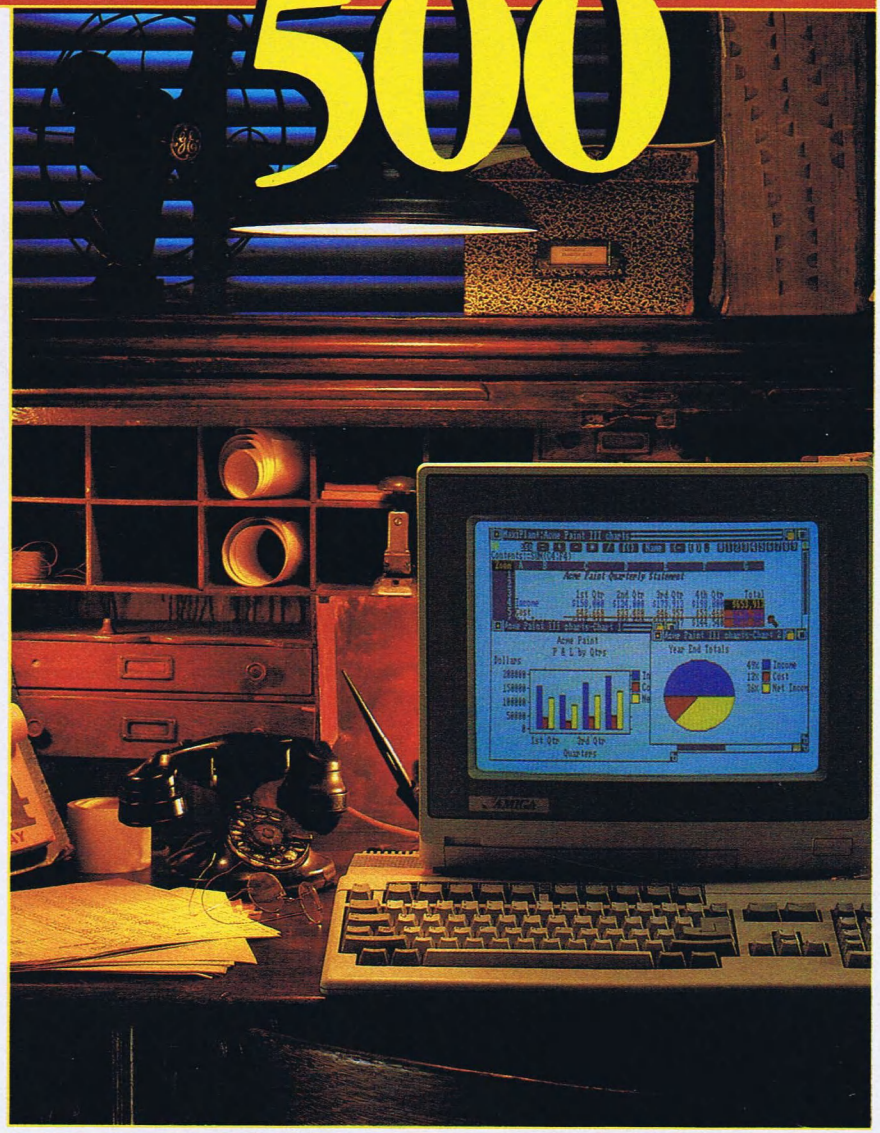
What gives The Director its real power is its use of double-buffering and its BLIT command, which can display several simultaneous animations created by "page-flipping" — showing a sequence of images one after the other, which is, of course, the way animated cartoons or movies work.

While you can run the program on a 512K machine, to use it to its full you need at least 1 Megabyte of RAM. Using 16 colour high resolution displays, you would be only able to hold 3 screens in memory on a 512K machine — though that number would increase to 50 screens using just two colours. Double-buffering is useful for those with expanded RAM. The Amiga's blitter, which can move chunks of memory around very quickly, only works on the computer's 512K Chip memory so that it is best not to clutter up the Chip memory with stored graphics if you can possibly avoid it.

With double-buffering you load pictures into a buffer, or specific area of memory, in expanded RAM and then transfer them to Chip memory when they are to be displayed. At the same time you load new pictures into the expanded, or Fast, memory buffer, so achieving a smoother display. You can have up to 30 buffers active at a time (a number which can be increased if you've a great deal of memory), so it can become difficult to keep track of what is in which buffer.



MaxiPlan 500



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This use of line numbers coupled with GOTO and GOSUB commands seems to me a clumsy method, particularly as line numbers are not otherwise needed. It would have been far better to have dispensed with GOTOs and GOSUBs and had instead PROCedures and FUNCtions, as found in the better BASICs. One of the advantages of The Director is that you can build up a program library of special effects, which you can then merge into new programs. That task would have been made much easier by the use of PROCedures, which define a particular action. All that you would have had to do then would have been to merge the PROCedure and call it by name when you wanted to use it.

No one, of course, would use The Director to create a simple slideshow. You'd be better off with a public domain program such as DPSlide. Once you begin to become familiar with its workings, programs look more like this:

```
ARRAY 100,1
buff=1
mode=0
OPEN mode, "piclist"
IF mode=0
PRINT "Can't open piclist":END
ENDIF
10 READ eof, $ (0), 80
IF eof=—1:wait=10: GOTO 30:
ENDIF
COMPARE eq, "end", $ (10)
IF eq; GOTO 20: ENDIF
PRINT "Loadin file"; $ (0)
LOAD buff, $ (0)
buff=buff+1
GOTO 10
20 READ eof, $ (0), 80
IF eof=—1:wait=10: GOTO 30:
ENDIF
wait=$ (0)
30 FOR i=1 to buff—1
DISPLAY i
PAUSE wait
NEXT
GOTO 30
```

What this program does is read from the disk a text file called "piclist" and then load the pictures named in the file into buffers in the computer's memory. The final commands, beginning at line 30, display the pictures on-screen as an animated sequence achieved by page-flipping.

As the manual admits, "you will inevitably make many mistakes as you work to achieve a particular effect"



The Director's programmed approach comes into it own in such circumstances, since this sequence of commands will load and show any pictures contained in the "piclist" file. In this way, once you've written an elaborate display program you can use if for different purposes by varying the list of pictures to be shown.

That, too, is simple stuff compared to a well-polished program. As the manual admits, "you will inevitably make many mistakes as you work to achieve a particular effect" — or, as it puts it elsewhere, "patient effort, one step at a time, builds an impressive display in the long run". The key words here are "effort" and "long run". There is no doubt that it is a slow process to create worthwhile displays. I feel the learning time could have been shortened by a more friendly approach: Hypercard on the Macintosh shows that it is possible to automate programming procedures.

Once you program is written and saved to disk, you invoke it from the CLI by typing "director" followed by its file-name. Providing it contains no bugs, The Director produces from it a new file which ends with the designation ".film". This file can be shown using another program, Projector, which can be freely distributed with it. Film files also have an icon attached to them so that they can be run from the Workbench.

The Director's creators could have made it easier to come to grips with the program by including more demonstrations with it. Its single disk is packed full but it would not have cost much more to have included a extra disk of demos of displays and special effects that users could have easily adapted to their own purposes and so shortened the time it takes to learn to use it effectively.

As it is, The Director is a difficult package but for those adapt at BASIC programming — or anyone willing to make the considerable effort — the results that can be achieved with it are little short of sensational.

J.W.

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GOMF

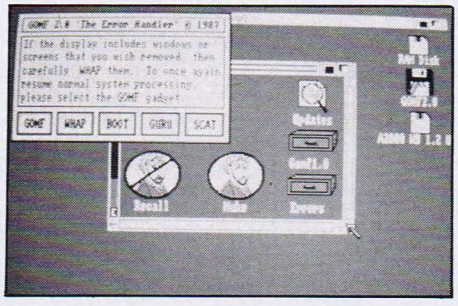
Fed up with THE GURU? Al Meric looks at a great new product that should bring a smile back to your face

There seems to be something about the Amiga that inspires people who produce products for it to dream up weird and wonderful names and commands for them. This product is no different... GOMF! What sort of name is that? Apparently it is an acronym for 'Get Outa My Face'. That aside, this is a great little program for those of you who tire of those heart stopping GURU messages. It is essentially an advanced error-handling routine designed to trap **'TASK HELD'** requesters and **'GURU MEDITATION'** Alerts, thereby keeping the Amiga alive and hopefully, most of your data intact. Story has it that the **'TASK HELD' CANCEL** option was originally designed to do as its name implies and Cancel the task/program that caused its invocation. Unfortunately, the programmer responsible for this piece of code is supposed to have left before it was finished. Hence, the goodbye world and data that results if it is selected at the moment.

I am one of those of the 'if all else fails READ THE MANUAL' school of computer science and my philosophy didn't seem to fail me this time. Within minutes of putting the disk into my machine I had caused several potential Amiga killer errors and recovered from them all successfully. However, if you are one of those sworn to read everything in sight then you will not be disappointed with **GOMF.** It comes on a single disk accompanied by TWO manuals/booklets. One being the main manual and the other a hands-on tutorial supplement. Either should get you going with a minimum of fuss. For those of you heavily into bits and bytes sufficient information is available to keep you experimenting for a while too.

GOMF can be initiated from Workbench or CLI and full instructions are given for installation on microfloppy and hard disk. By including a call to **GOMF** in the startup-sequence maximum protection can be gained. Once activated it displays a message for a few soeconds to tell you whether or not it has installed all 21.8k of itself in memory ok. It then sits there transparent to the user, just waiting for any problems to occur. If a **'TASK HELD'** type of problem takes place then the usual requester pops up. However, if you click on **CANCEL** you are no longer dispatched off to Guru land but are instead presented with a **GOMF** command window. A direct **'GURU MEDITATION'** alert will take you straight to the GOMF window. From here you can take one of five options: **GOMF, WHAP, BOOT, GURU** and **SCAT** (I told you they used weird names).

GOMF — This removes, as safely as possible, the offending program, displays a message reporting on its success or otherwise and then returns the system to normal processing.



WHAP — This is provided to remove any screens and windows that 'bad' programs may leave behind and which were not automatically detected and deleted by GOMF.

BOOT — Performs the equivalent of the Amiga three-key-reset.

GURU — This enables the normal error routines to proceed (GURU etc). This could be useful if a second terminal is available to monitor the ROM-WACK output (the Amiga's inbuilt debugging facility).

SCAT — Moves the GOMF window to the diagonally opposite corner of the screen.

In addition to the above options the **GOMF** window also contains the **ALERT** number, program counter address, library or vector type and a general description of error type. This is all displayed in a somewhat more human readable form than that provided by the normal mechanism.

The disk is also home to a number of other utilities:

NUKE — When used in conjunction with **GOMF** is used to remove any programs (good or bad) and return as much memory as possible to the system. It can be invoked from the Workbench or CLI and is useful for killing a program that has locked up or is stuck in a heavy loop.

RECALL — This will reactivate the **GOMF** window. It might be desirable for a number of reasons i.e. To reinvoke **WHAP** to remove superfluous display elements from a previously **NUKEd** program (which may take several **WHAPs** to clear) or just to check that **GOMF** is still functioning correctly.

GOMF1.0 Drawer — This contains a number of earlier **SHAREWARE** versions of **GOMF** including GOMF 1.0.obj. This is an object code file that can be linked to users (Non Commercial) programs and provides it with the same protection as **GOMF 1.0.** However, it allows the programmer to design his or her own method of handling error returns.

There is no better way of ruining your day than having a few GURUs rob you of hours or even days of hard work (where were your backups?). Here is a program that should help reduce those traumatic experiences and, if used in conjunction with a Virtual RAM disk and PopCli, forms the part of a valuable development aid. If Hypertek were to give GOMF away free BUT... charge a small fee for each GURU etc. if caught... they could get rich VERY quick!

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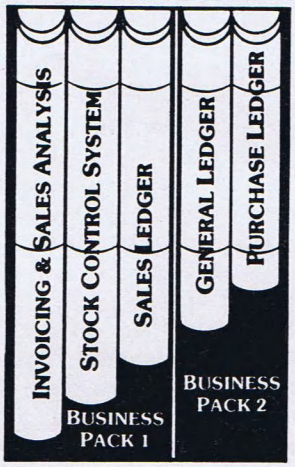
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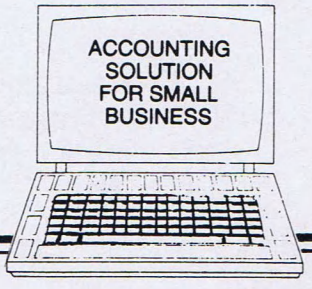
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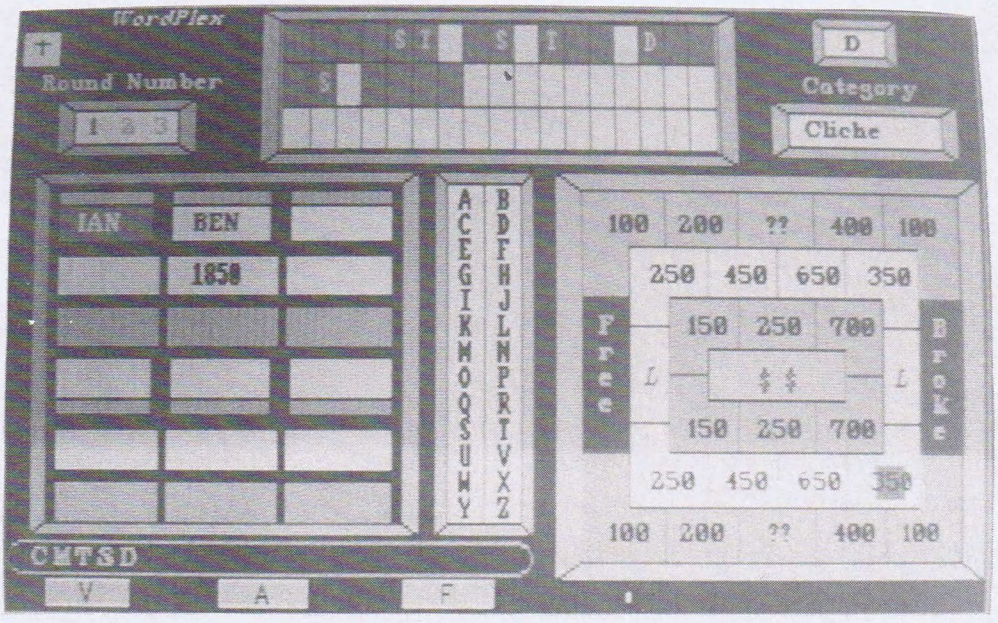
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WORDPLEX

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Each player's identity has to be entered before a letterboard appears with a mystery phrase concealed in it. Players take it in turns to select letters by means of either the keyboard or the mouse. First the mouse button or space bar has to be pressed to activate the money selector. Then the player can choose a consonant. If the chosen letter appears anywhere in the letterboard then the player wins the amount shown on the money selector. However, BEWARE! Not all the positions on the money selector are winners — one will entitle you to a free spin, whilst another will take away all your hard-earned cash! If the selector falls on 'L' then you lose your turn.

Vowels must be bought. Each one costs $250, which is automatically deducted from your money, whether or not the vowel guessed is successful. Free spins may be saved up for later in the game when they may be used to 'steal' another players turn. Provided it is your turn you can guess the whole phrase. If you are correct then the round is finished. A game is made up of three rounds. Once the three rounds have been played the scores are totalled and recorded. The computer then offers you the option of playing again.

If you are a trivia addict then you should really enjoy Wordplex. The game is very clear and colourful and is simple to operate and understand. Additional volumes of trivia phrases are available from PAR software (volume one provides over 1000 phrases) and as if that were not enough you can create your own Wordplex database. This could, no doubt, be very userful for specific educational purposes. As with any game, Wordplex is not without its little niggles. For example, I would have liked the speech to have been clearer. Also, when all the letters in a phrase have been revealed, it would have been nice if you did not still have to go to the border of making a guess. However, neither of these things presented a problem.

In fact, I shall be playing this one for a long time to come.

M.B.

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This is just a brief description of what the Startboard can do, phone or write for more details and pricing.

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The Spirit memory upgrade fits inside an A500 (can be used with A501) or A1000 and allows you to add 512K IMB or 15MB to your computer. The A1000 version also includes a clock and this is an option on the A500 version. The Spirit leaves your bus-port free and can also be used with Add on peripherals. Phone or write for more details and pricing!

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From Coast to Coast
AMIEXPO IN L.A

It never rains in Southern California, the song says. They should have qualified that with — Except during the Amiga Show.... The Los Angeles AmiExpo, a West Coast follow-up to the first ever Amiga event held in New York last October, was welcomed by climatic uproar. It was not the feared San Antonio fault earthquake but storms that swept furiously across the southern Californian coast, blasting away beachside restaurants, scattering snow on the hills around L.A. and bringing the declaration of a Disaster Area.

The unexpected tempests could not, however, keep away the thousands from L.A. and the surrounding areas who poured into the Westin Bonaventure Hotel for a more laid-back but equally successful version of the Amiga Dimension, show-biz style.

The format was an almost faithful copy of what had worked so well for the 8000 plus Amiga fans who had queued in New York — three days (January 16-18), three keynote speeches, a wide range of seminars with subjects that varied from introducing the 500 and 2000 to high-level graphic and CAD applications: plus, of course, the many companies exhibiting Amiga products.



Angela Malloy of OXXI, creators of Oskar winning Maxiplan.

"The Los Angles audience gave Jay Miner, only recently recovered from a serious illness, a fervent, long-lasting, standing ovation."

Video Toaster of NewTek creates The Amiga Effect.



The Westin Bonaventure Hotel is a landmark in downtown Los Angeles. 35 floors tall, it is built like three first stage interplanetary rockets clustered together. It was an appropriately futuristic environment for the seventy-five exhibiting organizations showing their leading-edge products for this state-of-the-art computer. There was also a sizable hall in which the first day's Keynote speaker, the revered Jay Miner, faced over 1000 interested listeners to tell the story of how the Amiga was created. In New York, 'The Father of the Amiga' had certainly been given a warm reception. Perhaps Californians are less restrained than East Coasters, for at the end of his speech, the Los Angeles audience gave Jay Miner, only recently recovered from a serious illness, a fervent, long-lasting, standing ovation.

R. J. Mical, the other senior figure in the development of the Amiga, responsible for the Intuition User Interface, was due, as in New York, to keynote the second day. Unfortunately, pressure of work at Epyx, where he is now involved in developing Amiga products, forced



Microillusions — the largest stand at the show.



CSA draws the power users.

him to cancel at short notice. Antony Jacobson, Managing Editor of Commodore Amiga User International magazine, was invited to step in and speak on "The European Dimension" of the Amiga.

He shared the floor with Gail Wellington, longtime Commodore faithful and recently promoted General Manager in charge of CBM's worldwide software development and also Richard Glover, CBM's Technical Support Manager in Europe. The Commodore managers responded frankly and interestingly to a wide-ranging series of probing questions from an enthusiastic audience.

The AmiExpo's third day's speaker was again Richard McIntyre, CBM's Senior VP of Sales and Marketing, who discussed the outlook for the Amiga and its impact on the micro-computer markets.

The first day's seminars at the Show covered, in addition to an introduction to the 500, Entry Level Desktop Video, with a panel that included Paul Montgomery of Newtek and Jim Sachs of Aegis; Amiga Music with David Rasmussen of Mimetics and Chris Moulions from New Wave; Desktop Publishing with Stephen Wagh of Brown-Wagh and Jim Bayless of New Horizons. There was also an introduction to the 2000 and Amiga Graphics with Ernie Plovim from Micro-illusions and Kalish Arbwani of Gold Disk.

"Among whose panelists was Dr Eric Graham of Byte by Byte, the creator of the famous ray tracing demo, The Juggler."

Sunday saw seminars on Amiga Animation, (Amiga Animation,) Amiga Expansion and Advanced Graphic Applications, among whose panelists was Dr Eric Graham of Byte by Byte, the creator of the famous ray tracing demo, The Juggler. There were also seminars on Professional Desktop Publishing and CAD Applications.

The last day included Professional Desktop Video with Tim Jenison of Newtek, creator of Digiview; Amiga Business Applications with Angela Malloy of Oxxi; Music/Video; Amiga Art and Telecommunications.

The only complaint heard about this rich feast of Amiga information came from both visitors and exhibitors. It was that every one of the seminars was well worth attending and it was simply impossible to see everything at the Show and get to all of them. Fortunately, it is possible to order recorded tapes of the keynote speeches and discussions.

While the seminars progressed, many visitors devoted their attention to the exhibition hall. There "The Amiga Effect" was well in evidence. This "effect" is recognisable by the

Karan Bayless demonstrates Prowrite



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Only the Amiga makes it possible!

AMIEXPO IN L.A. Continued!



Juan Holz's Constellation takes a starring role.

widened eyes, sagging jaw and stunned expression which is familiar a sight to those who have frequented shows where the Amiga and its products are demonstrated. The attendees most greatly affected are generally found near stands which have video or graphic products. This AmiExpo was notable for even more "Amiga Effect" looks than usual, especially at NewTek's stand where the "Video Toaster" was being launched. The "Video Toaster" is an extraordinary device that enables the Amiga to carry out video effects that are frequently seen on TV but are currently only producible by electronic wizardry of the highest professional level and consequent major costs. The "Video Toaster" makes this range and level of effects easily achievable on the Amiga. Newtek told Amiga User International the "Video Toaster" will be on sale early in the year and would cost "Under a thousand dollars". We learned from authoratative sources that the price might well be "a long way under $1000...". An astonishingly low cost for such a high-level product.

Byte by Byte was another attracting large crowds and causing a visible sensation by its combined Sculpt 3D and Animate presentation. This combination provides an outstanding degree of control over visual creativity, and the demos, especially of disembodied legs walking, heads expanding and shrinking and birds flying around a Ben-Hur-type AMIGA name, created with these products, had to be seen to be believed.

"Brown-Wagh — the largest publisher of Amiga business software — had The Works, their integrated W/P, spreadsheet and database program, Publisher Plus and Zuma's TV Show."

A squared too made a visual impact with its "LIVE" — a real-time video framegrabber. Aegis had VideoTitler and also introduced a new German-written simulation game, Port of Call. Digital Creations launched a new SuperGen Genlock. Brown-Wagh — the largest publisher of Amiga business software — had The Works, their integrated W/P, spreadsheet and database program, Publisher Plus and Zuma's TV Show for the creation of animated presentations. Gold Disk showed Professional Page, a high-end DTP system that, we were promised, as at New York, would be shipped shortly.

This promise was also made by Infinity for their eagerly-awaited "Shakespeare" page interrogator. The recently 'under new management' Interactive Softworks received acclaim for their Calligrapher and its new range of fonts. New Horizons were demonstrating their popular ProWrite and the highly creative ideas processor "Flow".

A new DTP package "Publishing Partner" came from Soft Logik and The Other Guys showed "Reason", a professional proof-reading system.

AMIGA AMIGOS

A few days after returning from the Los Angeles Ami-Expo we received a letter from Alfredo González of Grupo Sigma, Commodore's Mexican distributor. Although not directly related to the Amiga it does cover a very important element of life, that of friendship . . .

The letter follows:

I want to share with you a combination of bad news and good experiences that I had while attending January Ami-Expo at Los Angeles.I was arriving from Mexico, where we are Commodore distributors and on my way to the hotel I was assaulted with violence, was injured and theives disappeared in a car with my wallet, and my money. I reported to the Police but after a search, we decided that nothing could be done but just fill out the report.

When I went - afterwards - to the hotel where the show was going to be held, I asked the people at the front desk to talk with a person that could help me to register in my situation and they sent me to the assistant manager. I told her what happened, explaining her that even though I had no money or credit cards, I did have checks from my accounts in the US. I showed her my passport, my ID's, business cards,check books and obviously a copy of the Police report. She answered that nothing could be done, in accordance with the policies of the hotel. I argued that policies are for regular situations but exemptions must be made in exeptional cases - like this one -. She replied laconically: "Sorry". If my previous experience was bad, this one was even worse. On the streets I was victim of poverty, in an inexorable social disease but at the hotel I was victim of bureaucracy, a stupid organizational disease.

The nice part of the story is that just going out of the office, I started to meet friends that were attending the show and they helped me immediately. An English exhibitor signed my room with open account charged to his credit card. Juan Holz (of Constellation Software) offered me cash and not only he and other friends but even people I never met before did so. Alexander (Ami - Expo organizer [ED]), at the registration booth gave me - without charge - a VIP badge; perhaps the "I" meant in my case: "Impoverished". I cashed later at the show some checks.

My most important experience from this show is my realization that we are more than a computer community. We are a kind of family.

I came to see Amigas and found many "amigos".

AMIEXPO IN L.A, Continued!

Wordperfect launched "Wordperfect Libraries" at the Show and an exciting new state-of-the-art word processing package called "Excellence", from Microsystems (creators of Scribble) was privately demonstrated. "Excellence" looks certain to challenge Wordperfect for leadership of the professional level Amiga word processing market.

On the more technical side, CSA announced its "Over 030", a motherboard sporting Motorola's new 68030 microprocessor with on-board memory management and a 68882 math co-processor. Spirit Technology showed internal memory expansion products. Supra brought an affordable 2400 Baud modem. ASDG presented its 2000 AND 1 Amiga card rack and a Satellite Disk Processor; and there was a very fast hard disk to floppy backup utility, called "Quarterback" from Central Coast Software.

"Discovery whose Arkanoid is at present probably the top Amiga game worldwide;"

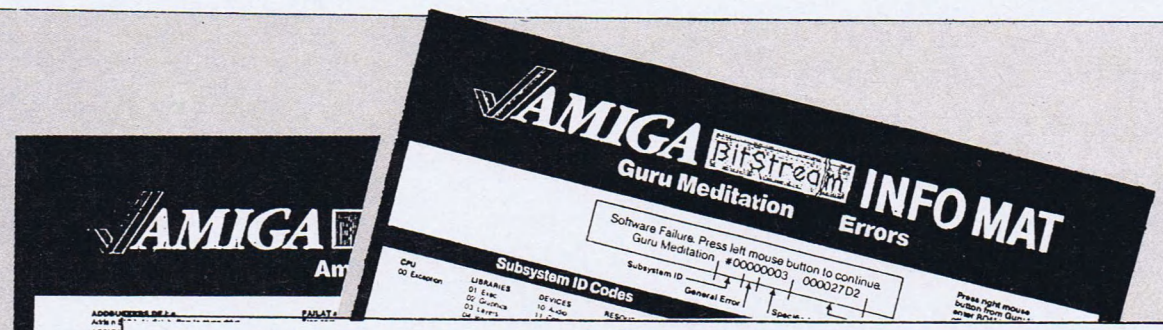
The AmiExpo's least impressive turn-out came from games software companies. These are notorious for their reluctance to exhibit at machine specific shows. Notable exceptions at AmiExpo were Accolade, a company founded by games designers and recent creators of "Test Drive"; Discovery whose Arkanoid is at present probably the top Amiga game worldwide; Microillusions, with the largest stand at the Show and possibly the biggest range of entertainment products, including the Oskar-winning Faery Tale; and finally Topdown launching their Viper shoot 'em up game.

Readysoft attracted attention again with their 64 Emulator as did Hypertek with what they called 'impossible' products including GOMF, a utility that claims to eliminate GURU errors.

There were AmiExpo Tee shirts on sale, very forcefully respresented by an "I-Won't-Take-No-For-An-Answer" pretty 11 year-old girl. When we persuaded this very determined young salesperson to switch allegiance, on the last day, to the Stand of this magazine, she used her unmercifully aggressive sales techniques to interrupt a meeting chaired by Max Toy, CBM's new chief executive and replacement for Tom Rattigan. She sold him a copy of Amiga User International and then convinced every one of the others at the meeting to buy copies of the magazine, too.

The general opinion was that if Commodore wants to sell Amigas by the million they should make her at least Vice President of Sales in time for the next AmiExpo to be held in July in Chicago.

There are now more than 700 products available for the Amiga. While that list goes on increasing, the Amiga Dimension will continue expanding and, it seems, the AmiExpo will go on travelling. Maybe to Europe later in 1988?



AMIGA INFOMAT

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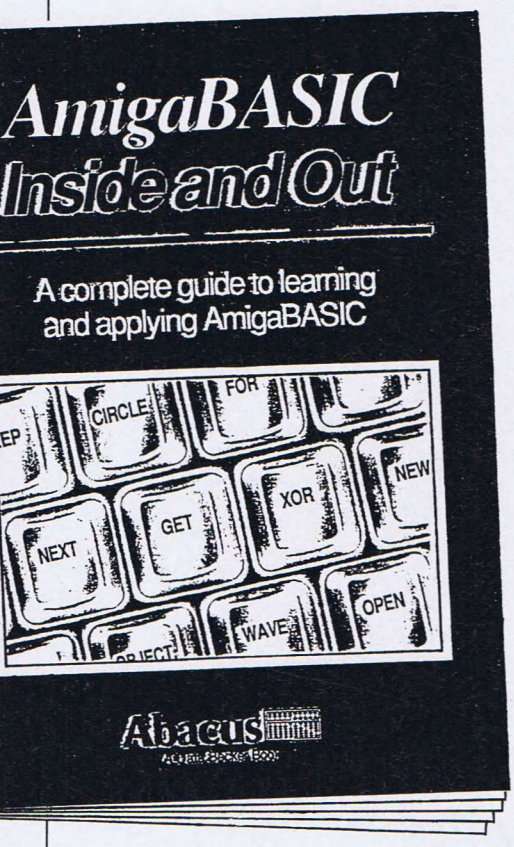
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AMIGABASIC



AmigaBASIC

Regardless of what people say, or what they think should be the correct programming language, the fact is that the most common of all the languages that are in use on home computers is BASIC. BASIC started life as a very easy and in many cases simplistic language to learn, the main aim of which was to be used as a teaching tool. The BASIC language was so simple that the amount of time that it took to master the commands and syntax was minimal and so the users could concentrate on learning how to program. In time, home micros grew in memory size and power and eventually reached the degree of complexity and sophistication that represents the Amiga. It was only natural that BASIC would grow and improve with the machines and the current end result is something like the BASIC that is available for the AMIGA. You will find this BASIC on the EXTRAS disk that comes with the Amiga. Currently version 1.2 is being distributed. The resemblance to the original BASICs is still there but the power and flexibility of the language has increased dramatically and there are so many commands that it now takes a major effort on the part of the user to learn how to write programs effectively.

There have been many books on the subject of AmigaBasic, trying to cover the gaps (gaping holes in fact) that were in the original handbooks. There is a tendency to think "not another BASIC guide!" when you see a new book on the subject.

I am of the opinion that writing the BASIC compiler is trivial compared to writing a readable book on how to use it. The many efforts of CBM to write handbooks come to mind as examples of how not to do it. As I started to read the book, something rather strange was happening. I found myself wanting to read the next page and then the next. I must admit that only one other programming book has ever been able to lay claim to that! This is a rather bold statement to make but it is how I found the book and will give you a "feel" for the style and ability of the authors.

The book itself is a hefty 548 pages divided into 6 chapters and 5 appendices. It is the style of the book that is so noticeable. I think that the best way to describe it would be to reproduce a short paragraph. A short program (5 lines) has been used to demonstrate the effects of READ and DATA. The following paragraph describes the actions.

"Do you see how it works? The values in the DATA line are assigned to the corresponding variables in the READ line. In a program the reading always begins in the first DATA line, regardless of where it is located. Then the values are read consecutively. Be careful that the variable types and the values correspond. If you tried to read a character into a numerical variable, you'd get a *Type mismatch* error message. If all data have been read, and another READ command is encountered, the Amiga would display an *"Out of DATA"* error message."

The above paragraph is typical of the whole book. It is a no nonsense approach that is refreshing and very effective in getting the information across to the reader. Another point that is worth making is that the graphic command descriptions are very clear and as the IFF format is so important to the Amiga this file structure is explained in detail and without resorting to the rather messy and jargon-ised versions that can be found in other Amiga handbooks. Just to demonstrate how easy it is, a couple of basic programs are given and fully described on how to load and save graphics in the IFF format.

The breakdown of the chapters is:

Chapter 1 *Introduction, BASIC and LIST windows BASIC commands, saving programs, bobs and sprites, TRACE, OBJECT commands, color.*

Chapter 2 *Screen resolutions, windows, graphics, mouse and menus, bits and bytes, Blitter paint & fill patterns.*

Chapter 3 *Creating BASIC disks, disk directory trees, disk commands in Amigabasic statistical data, pie charts, peripheral devices, printing.*

Chapter 4*Get and put, IFF, graphics, loading graphics, adding your own commands, number systems, saving pictures.*

Chapter 5 *Random files, database program.*

Chapter 6 *Speech, Say and Translate, say options, speech utility.*

Appendix A *Error and help messages.*

Appendix B *AmigaBASIC reference section.*

Appendix C *Error free listings of the programs in the book.*

Appendix D *BASICDemos description and information.*

Appendix E *Technical dictionary.*

There are so few books that come up to this standard and I'm sure that this is the only AmigaBasic book that does. It makes many otherwise very good books look worse than they are. I have no doubt that this book will become one of the all time standards that every AmigaBASIC programmer will want on their bookshelf and it will become the yardstick against which all others will be measured. As you probably gather, I am somewhat enthusiastic about this book. It may not suit everyone, but I can't begin to imagine the sort of person who would not like it.

To conclude, a book that is superbly produced and written, with a no-nonsense approach to the art of AmigaBASIC programming. Many examples and useful programs, all set out in such a way as to encourage the reader to learn and have fun whilst learning AmigaBASIC.

A.E.

A Data Becker book - ISBN 0-916439-87-9
Contact: Abacus 5370 52nd Street SE, Grand Rapids, MI 49508. Price £16.95

BUSINESSWARE

Panmead's Accounting System

Software for the Amiga has been created for a multitude of different activities. However, one area until now neglected, is accounting. Especially for small business, this would be highly useful. Panmead have created the first real integrated package. Ben Lewis checks it out.

The problem with extending frontiers is that any comparison of where you are can only be made by reference to whence you have come. In the case of this accounts package for small business, there is clear evidence that its origin is in MSDOS rather than having been created specifically for the Amiga. What is less obvious is that it comes from an unusual location for Amiga software — New Zealand. What special advantages does its origin lend it? With due respect to the Southern Hemisphere, nothing special from New Zealand. However, the MSDOS source does give it an already established and well tried field base in which it has had considerable success. It comes in two packs. Pack I contains Sales Ledger, Invoicing and Stock Control and Pack II contains Purchase Ledger and Nominal Ledger. We put Pack 1 through its paces.

On invoking the package from Workbench, one is confronted with the expected icon choices. After having clicked the selection, the mouse can be put to one side, for hereon in, the environment and menus are clearly PC style.

The sales ledger has some nice features such as alpha search on Enquiry and Input Programs; the ability to categories customers by Customer Type and Sales Type; use of function keys to generate account numbers. Yet it also has some peculiarities such as the postcode only being four characters long — clearly O.K. in New Zealand — but not in the U.K. unless you only use the first three characters of the code; there is an exemption field in the master file record that is supposed to accept only Y for yes tax or N for no — we managed to enter 9 digits which were happily accepted!

The Invoicing/Stock works reasonably well with ample facilities and reports for most small businesses — the options of choosing between 1 of 6 different invoice formats and after 4 different message lines were particularly liked.

V.A.T. accounting needs to be carefully considered. To work properly the customer master record has to be designated exempt or non exempt and the product given a tax code (which is derived from a user defined tax table), these then become the defaults, any changes such as exempt sales to non-exempt customers can be made by changing the product tax code default on order entry.

However the audit trail listings do not properly report V.A.T., neither is there an apparent method of getting the V.A.T. registration number onto the invoice except as a message line.

Reports include Statements, Aged Debts, Transaction Listings, Stock Lists, supplier Purchase Analysis, Stock Take lists, Sales Analysis etc. — all were well presented with relevant information.

"Panmead must be praised for providing this hot line service, which all small businesses will certainly appreciate"

The manual is adequate if a little difficult to follow — the sections after Sales Ledger, Stock Control and Invoicing sales analysis could have been more easily identified.

There is a hot line if you get into trouble, which is a tremendous advantage to any small business. For its means that any time you get into problems — more likely caused by yourself than the package perhaps, there is someone to advise and provide the vital help you need to get you back into operation. Panmead must be praised for providing this hot line service, which all small businesses will certainly appreciate.

All in all Panmead have succeeded in bringing the first non-U.S. orientated fully integrated accounting package to the Amiga — it may have warts, it is not fast, yet it is there up and running and for that alone at £145.00 + V.A.T. represents excellent value.

B.J.L.

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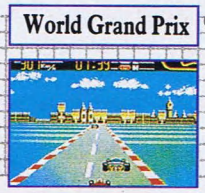
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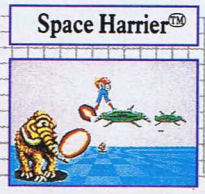
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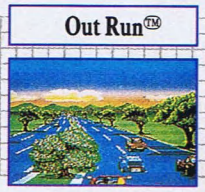

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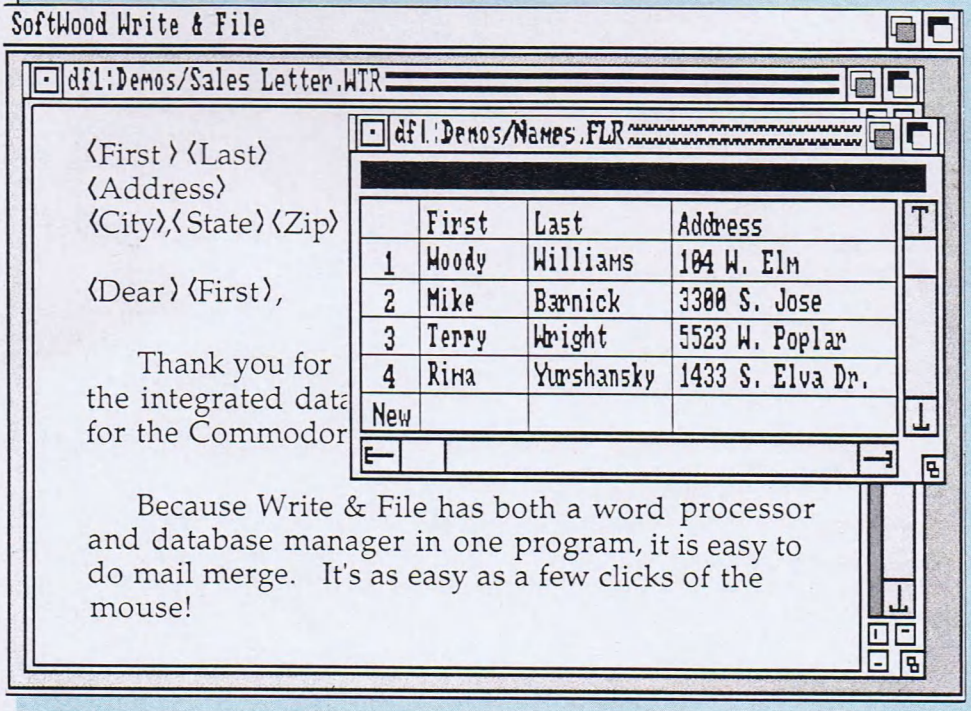

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WRITE & FILE

The Amiga's power and flexibility makes it an ideal word-processing tool. Peter Lee examines a newcomer to this crowded field which might just have the edge over the competition....



A new breed of word-processor is emerging for the Amiga which at last takes full advantage of the machine's inbuilt potential. In the early days we were glad of any program which allowed us to type text on the screen and print it out but with major advances in software development over the past year or so, the subtleties available to Amiga programers have been exploited in more and more ways. The beast has slowly given up its secrets and the rich harvest of features are at last being plundered. The trouble is that now, anything only moderately good is second best; it is a tough market out there - and getting tougher with an increasing number of owners wanting software to push their computers to the limit.

Write & File is a case in point - Softwood, who have produced the program, have had the good sense to give themselves an edge in the crowded word-processing market by, first of all, opting for a graphic-display set-up with multi-font capabilities and secondly by incorporating an integrated database manager in the package. As an added bonus, Write & File comes with a massive 100,000 word dictionary and the option to configure a user dictionary for your own particular specialist words. So it is a triple-decker of a program which really does break new ground and fill a gap in the market.

Write & File offers true WYSIWYG screen output, which although unfortunately not allowing the use of graphics in documents, does permit you to use any font you like. There are two factions in the word-processing debate - those who prefer standard printer text with no frills and those who from time to time like to be more adventurous and incorporate in their documents some of the beautiful fonts now available for the Amiga. As one of the latter, I get the best of both worlds in this package: I can print a handbill with mixed fonts but at the same time I can also output any text in the standard printer font thanks to the program's versatility. So if you're writing serious business documents they can be made to look pretty official; on the other hand there's nothing to stop you creating a frilly letterhead in a fancy font!

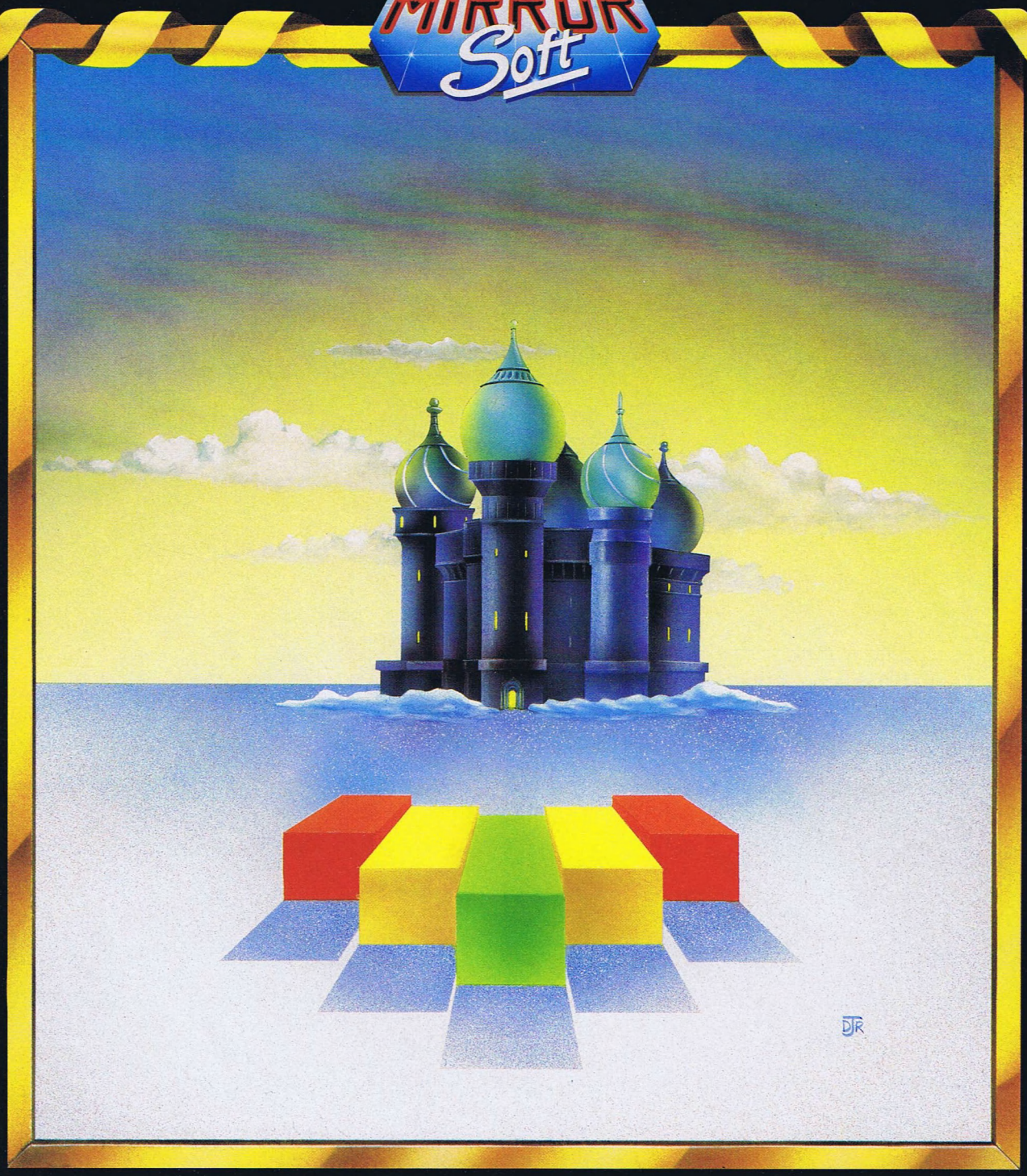
The program comes on two non-protected disks - one for the workbench/system, the other containing the dictionary and extra files. There's a straightforward ring-bound manual with the very annoying trait of having every reference to the program name followed by the Trade Mark symbol and believe me, it refers to itself a lot of times ... Minimum system requirements are suggested as two drives and at least 1 meg of memory (the program uses either hi-res or interlace screen display - wonderful crisp definition traded off against memory-hungry modes). The 512K machine is just too small for the program to run on. Various parts of the program are loaded as and when required in overlays, though provided you have sufficient memory you can either force the program to load fully into memory on starting up, or else transfer the entire program to a RAM disk, which is created on booting up the system disk. As documents are stored in memory while you are working on them, the more memory you have, the more you can pack in - but conversely, the fewer free bytes you have, the greater the restriction on your document size.

Write & File has one of the neatest and most intelligent input screens I have ever seen on a word-processor. It is a combination of pull-down menus, slider bars and pointer-operated gadgets which control everything about your finished document. It only takes a few minutes to become proficient in the use of these controls - there are no embedded commands to clutter up the screen or send you packing to the manual. It really is a case of elegant simplicity and it is what the Intuition interface is all about. Among document features you can control simply by using the mouse in the perimeter control areas are ruler settings (paragraph indent, margins and tabs), scrolling line by line or block by block, jumping to a specified page, text alignment (left, right, centre and justify) and control bar hiders for showing more of your document on screen. Once the program is running, you are presented with a sharp display screen on which to work. Surrounded on all sides by the control gadgets, you enter text at an insertion point indicated by a short vertical cursor. The mouse-controlled

CONTINUED ON PAGE 36....

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.... CONTINUED FROM PAGE 34

cursor is needed to call the program's many functions and incorporates the neat twist of changing to a text cursor containing a help message about the exact selection area you are on. This is called a 'smart' pointer in the manual - and it is very, very clever and helpful. Cut and paste operations also rely on text being highlighted by the mouse cursor before choosing the appropriate action from the drop-down edit menu. Luckily for people like me who change their mind a lot, there is an 'undo' facility for reverting things back to the way they were before your last action.

"With Write & File it is just a case of defining your margins with the mouse and inserting the text"

Using the mouse is pretty much second nature to Amiga owners - the window environment is a dream to use - take my word as someone bored to tears with having to use a PC at times. The drop down menus are also a familiar sight, cropping up in almost every program. The menu choice of Write & File complement the window frame gadgets, allowing total control over the document. Request boxes - all superbly designed and a doddle to operate - pop open from time to time when some commands are invoked and allow the kind of fine-tuning of the program which make it such a versatile creature. Headers and footers are the kind of 'mystery' commands on most word processors which take a degree in physics to define and place - but with Write & File it is just a case of defining your margins with the mouse and inserting the text. Automatic page numbering is also simplified and insertion of the current date is just a matter of selecting an option from a pull-down menu.

The printer set-up, as defined from the Workbench Preferences, defaults to Epson but provided your printer is one of those supported in the standard preferences list you can alter this easily, as more drivers are supplied on the dictionary disk. From within a document you can specify whether you want a true WYSIWYG dump (fonts and all) or simply a text print-out in the printer's typeface. One of the cleverly-designed windows is used to allow you to define your page set-up for printing, giving options for page size and even calculating the margins and binding widths for double-facing pages. Another window gives all the information about the document you'll ever need - word count, number of sentences, paragraphs, averages and maximums: a statisticians dream!

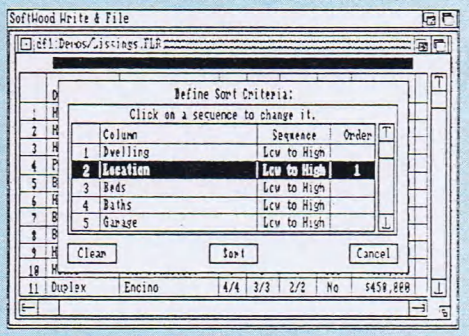
THE DATABASE MANAGER

Mail merge programs which allow you to integrate names and addresses in documents are somewhat routine, if pretty simple, these days. Write & File, however, offers a quantum leap by providing a fully-fledged database program on the same disk as the word-processor. Softwood also produce the excellent and simple-to-use MiAmiga File dedicated database - you can see by comparing the two programs that both that and the Write & File program are out of the same stable. Documentation for this portion of the program is contained in the same manual as the word-processor (and not separately as the package states) which is quite natural as the two are so closely linked - it's a case of true integration. The database and documents may be open simultaneously thanks to the Amiga's excellent windowing and multi-tasking functions. To enter the Database Manager you first of all need to open a Write & File document, then close it - which is probably the most clumsy thing about the whole package. Now you can open a database by selecting the option from a pull-down menu, with the data being displayed in a new window which opens up.

Defining your database is simply a matter of a question and answer session carried out by dialogue boxes, permitting you to name and define the columns of your database. These columns can be simply text, a phone number - which can be used to dial a number when the database is being used - a calculation, or even an IFF-format picture which can be displayed on request. Sound files, too, provided they are in the IFF format can be named and played back using the special database provided. Control of the display of entries is excellent, with the ability to sort and search and edit entries at any time, scroll bars allowing rapid movement. Cutting and pasting from one cell to another is another feature which is as simple as pointing the mouse and clicking on a menu option. As if all this flexibility were not enough, you will not be too surprised to learn how easily the database can be used as a source for information for the word-processor.

"You specify which column of the database to insert in your document simply by putting the column name in angled brackets"

Not only can you do 'simple' tasks such as mail-merge (multiple documents customised by having individual names and addresses added automatically), you can include lists of data in letters (maybe your software collection, property for sale etc), create envelopes and design labels by creating a template. The database has to be open for any mail-merging to take place and you specify which column of the database to insert in your document simply by putting the column name in angled brackets (eg ‹Name›). There is, however, a limit of 32 on the number of database items you can include in a document in this way. Text reformatting is carried out automatically to suit your chosen preference as the new data is incorporated. There is also the option to do what is called a List Merge, which actually adds the text in your document as opposed to culling it from the database when printing.



CONCLUSION

For under £100 Softwood are offering in one package a multi-font word-processor and superb database manager, plus a 100,000 word spelling checker which has the good sense to offer its own suggestions for mis-spelt words. It is a marketing move which should win it many friends among users. The design concept is faultless; controls are elegantly mounted with a great deal of thought for the end user. In fact I would go so far as to say the control aspects of the program - both word-processor and database manager - are the best I have ever come across. You actually feel someone who cares about human-machine interaction has designed it. The type of word-processor developed here - multiple fonts with the option of graphics dumps - arouses fierce loyalties and some business-users may shy away from this non-standard approach in favour of the more conformist text editors. This conservative approach is reasonable but they will be missing the opportunity to develop more creativity in their presentation. As for the database manager - what a pearl to find here. it's not thrown in as a gimmick. It really is a fully-fledged professional tool which taken along with the word-processor makes the package irresistible to me. Easy to use and obviously taking full advantage of the Amiga, perhaps the only cloud for some users will be its graphic font display rather than the more business-like plain text screens.

P.L.

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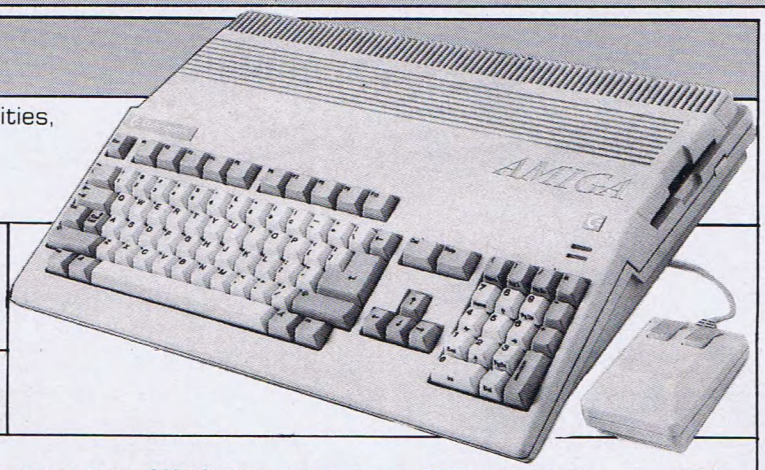
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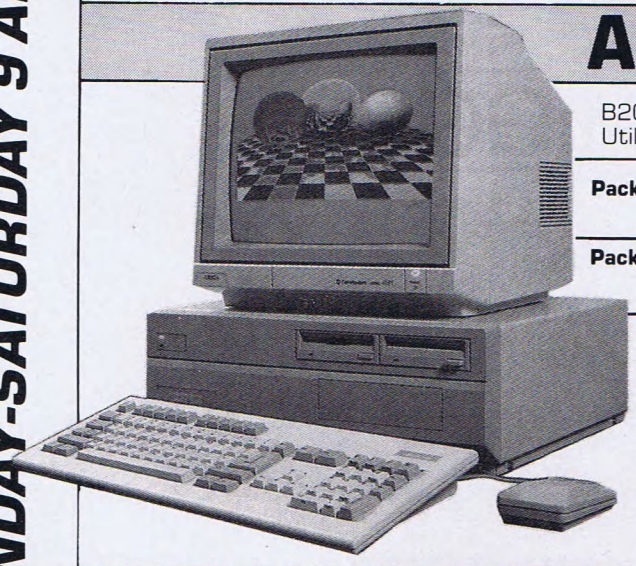
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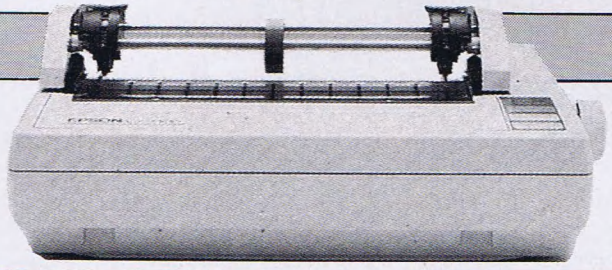
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QUAD

'Quick and Dirty' - easy riding on the Amiga trail

This month Giulio Zicchi takes a look at Bit Maps on the Amiga

When we talk about Bitmaps, or playfields, with reference to the Amiga we simply mean the screen display. Unlike machines such as the Commodore 64 which utilises hardware "trickery" to produce a low resolution character display, screens on the Amiga are bitmapped, ie we have control over every individual pixel on the screen. A pixel, or picture element, is the smallest dot on the monitor or T.V. screen that can be manipulated.

There are several different display modes on the Amiga - low resolution, high resolution, interlaced, dual playfield and "hold and modify". The number of colours available in each mode is dependent on how deep the current playfield is. At this stage it is necessary to explain that Amiga screen displays should be thought of as three-dimensional. Every screen has a height, a width and a depth. For example, a 320x200 low resolution display consisting of a single plane would allow us two colours - one colour where the pixels are on and another where they are turned off. If we now add a second plane behind the first, we have four different pixel combinations:-

Front plane pixel	*Back plane pixel*	*Colour*
OFF	OFF	0
OFF	ON	1
ON	OFF	2
ON	ON	3

Thus, by layering extra bitplanes the number of colours available increases exponentially up to the maximum allowed for the mode chosen.

Those of you already versed in binary will see the direct connection between the number of colours available and the maximum number of bit combinations there are in a given maximum number of bits, as the following table shows:-

Display Mode	*Maximum bitplanes allowed*	
Low resolution	5	(32 colours)
High resolution	4	(16 colours)
Dual Playfield	3	(8 colours each playfield)
Hold and Modify*	6	(all 4096 colours)

Hold and modify is a special display mode whereby all six bit planes are used and we are able to 'hold' the Red, Green, or Blue complement of a pixel and 'modify' the other two colour complements.

In our example, we set up a 320x200x3 plane display which allows us eight colours (including background colour). The example simply scans a table of co-ordinates and uses them to call the Rom routine RECTFILL which is located in the graphics library.

Note the use of ALLOCMEM in the Exec library which legally allocates the correct amount of memory for our display and also note that, as we are delving deep into the system graphics routines, this example seizes the entire display and is not compatible with Intuition, the windowing environment.

G.Z.

```
   OPT C-,D+

  INCDIR "DFO:INCLUDE/"
  INCLUDE GRAPHICS/GFX.I
  INCLUDE GRAPHICS/RASTPORT.I
  INCLUDE GRAPHICS/GRAPHICS_LIB.I
  INCLUDE EXEC/MEMORY.I
  INCLUDE EXEC/EXEC_LIB.I
  INCLUDE HARDWARE/CUSTOM.I

CUSTOM    EQU $DFF000

MEMORY  EQU MEMF_CHIP+MEMF_CLEAR

  LEA GFXLIB,A1                  Name of library to open
  MOVEQ #0,D0                    Any version
  CALLEXEC OPENLIBRARY           Call Rom Open routine
  TST D0                         Successful ?
  BEQ ERROR                      No - exit
  MOVE.L D0,_GFXBASE             Store Library Base
  MOVE.L #24000,D0               Amount of memory to reserve
  MOVE.L #MEMORY,D1              CHIP memory - flag
  CALLEXEC ALLOCMEM              Call Rom Alloc routine
  TST D0                         Successful ?
  BEQ ERROR                      No - exit
  MOVE.L D0,MEMORY_POINTER       Store Mem Base
  LEA MYBITMAP,A0                Prepare for Bitmap initialis
  MOVE.L #$03,D0                 3 planes deep
  MOVE.L #320,D1                 320 pixels wide
  MOVE.L #200,D2                 200 pixels deep
  CALLGRAF INITBITMAP            Call Rom Initialise
  LEA MYRASTPORT,A1              Prepare for rastport initialise
  CALLGRAF INITRASTPORT          Call Rom Initialise
  LEA MYRASTPORT,A1              Don't assume A1 contents !
  MOVE.L #MYBITMAP,RP_BITMAP(A1) Bitmap pointer in rastport
  MOVE.L MEMORY_POINTER,D0       Base of memory block
  MOVE.L D0,D1                   Copy
  ADD.L #8000,D1                 Add 8000 offset to plane2
  MOVE.L D1,D2                   Copy
  ADD.L #8000,D2                 Add 8000 offset to plane3
  LEA MYBITMAP,A0                Base of our bitmap structure
  MOVE.L D0,BM_PLANES(A0)        Store bitplane addresses
  MOVE.L D1,BM_PLANES+4(A0)      In our Bitmap structure
```

```
 MOVE.L D2,BM_PLANES+8(A0)
 MOVE.W D0,PL0L                  Now store Bitmap addresses
 MOVE.W D1,PL1L                  in the copper list
 MOVE.W D2,PL2L                  but since copper instructions
 SWAP D0                         are word length
 SWAP D1                         we have to store the bottom
 SWAP D2                         word of each register at the
 MOVE.W D0,PL0H                  low word label (see below)
 MOVE.W D1,PL1H                  then swap the words
 MOVE.W D2,PL2H                  and store the high wor
 MOVE.L _GFXBASE,A6              Gfxbase to A6
 ADD.L #$32,A6                   Offset to current copper list
 MOVE.W #$80,DMACON              Kill copper DMA
 MOVE.L (A6),OLDCOPPER           Store old copper address
 MOVE.L #NEWCOPPER,(A6)          Insert our new copper address
 MOVE.W #$8080,DMACON            Enable copper DMA
 LEA MYRASTPORT,A1               Our rastport - again !
 MOVE.W #$01,COLOUR              Set first colour for our loop
 LEA RECTABLE,A0                 Base address of rectangle data
RECTANGLE_LOOP
 MOVE.W COLOUR,D0                Colour to D0
 LEA MYRASTPORT,A1               Rastport !!
 CALLGRAF SETAPEN                Call Rom colour set routine
 ADD.W #$01,COLOUR               Increment colour
 CMP.W #$00,(A0)                 End of rectangle table ?
 BEQ WAIT                        Yes - wait for mouse button
 MOVE.W (A0)+,D0                 First word in table is X start
 MOVE.W (A0)+,D1                 Second is Y start
 MOVE.W (A0)+,D2                 Third is X finish
 MOVE.W (A0)+,D3                 Fourth is Y finish
 MOVE.L A0,-(SP)                 Save A0 since Rom call corrupts
 LEA MYRASTPORT,A1               Rastport pointer !!!!
 CALLGRAF RECTFILL               Call Rom solid rectangle routine
 MOVE.L (SP)+,A0                 Retrieve A0
 BRA RECTANGLE_LOOP              Branch always


WAIT  ANDI.B #$40,$BFE001        Left mouse button down ?
 BNE WAIT                        No - then wait
 MOVE.L _GFXBASE,A6              Gfxbase pointer
 ADD.L #$32,A6                   Offset to copper address
 MOVE.W #$80,DMACON              Kill copper DMA
 MOVE.L OLDCOPPER,(A6)           Old copper address back
 MOVE.W #$8080,DMACON            Enable copper DMA
 MOVE.L MEMORY_POINTER,A1        Memory base for Freemem
 MOVE.L #24000,D0                Amount to free
 CALLEXEC FREEMEM                Call Rom Freemem
ERROR RTS                        Fin !!

OLDCOPPER DC.L 0

NEWCOPPER DC.W $0100,$3200,$0102,$0000,$0104,$000A
  DC.W $0108,$0000,$010A,$0000
  DC.W $0092,$0038,$0094,$00D0
  DC.W $008E,$2C81,$0090,$F4C1  DC.W $00E0
PL0H  DC.W $0000
  DC.W $00E2
PL0L  DC.W $0000
  DC.W $00E4
PL1H  DC.W $0000
  DC.W $00E6
PL1L  DC.W $0000
  DC.W $00E8
PL2H  DC.W $0000
  DC.W $00EAPL2L  DC.W $0000
  DC.W $0180,$0000,$0182,$0A00
  DC.W $0184,$00A0,$0186,$000A
  DC.W $0188,$0F44,$018A,$004F
  DC.W $018C,$00C4,$018E,$0A66
  DC.W $FFFF,$FFFE


GFXLIB  DC.B "graphics.library",0
  EVEN
_GFXBASE DC.L MEMORY_POINTER DC.L 0

MYRASTPORT DS.B RP_SIZEOF
  EVEMYBITMAP DS.B BM_SIZEOF
  EVEN
COLOUR  DC.W 0
RECTABLE DC.W 10,10,120,100
  DC.W 50,50,240,150
  DC.W 80,30,300,100
  DC.W 20,40,200,150
  DC.W 50,50,150,130
  DC.W 240,10,300,17  DC.W 100,140,310,180
  DC.W 0
```

POLAROID PALETTE

Created an Amiga masterpiece and need to reproduce it? Al Meric looks at the ideal solution and tells us how things are developing.

Taking pictures of computer screens is an art in itself. All too often I receive slides etc. sent in by readers and advertisers that are not exactly up to scratch. I can think of two ways around this problem: Pay a professional photographer to take your screen shots or get yourself a Polaroid Palette. If you are only ever likely to take the odd screen shot once in a blue moon then you are probably better off either paying an expert or keep trying until you get it right yourself. If, however, you are often in need of such a facility then the Palette is a must. When I first took delivery of our review machine I was amazed at how large the parcel was. Opening it up soon revealed why such a big container was necessary. Enclosed were the palette (a rather large beast itself), a Minolta 35mm camera back, a polaroid Landpack instant camera, a power film processor, an illuminated slide cutter and mounter, an interface, two manuals and software.

How does it work? The palette contains a high resolution black and white monitor on which the images are displayed. The film is then exposed to these images via a series of motorised colour filters (similar to Digi-View) thereby building up a colour picture.

"By using some of the program's special effects it is possible to reduce, if not eliminate, the appearance of raster lines from your final shots"

Setting up simply requires that you plug the palette into the interface and that in turn into the Amiga's serial port. A video lead is connected between the interface and the Mono-video-out port of the Amiga. It's worth mentioning at this point that the Amiga 2000 comes in two flavours; the A2000 and B2000. One of the differences between these two models is that the A2000 does NOT have a mono-video-out port as standard . . . buyers beware!

The software must be loaded next by inserting the disk at the Workbench prompt whereupon it will auto boot. After a few preliminary hardware adjustments/syncronisations the Palette is ready to go. The software is menu driven and is the means by which the Palette is operated. It enables you to load in images, to view them and adjust their colours if necessary prior to photographing them. By using some of the program's special effects it is possible to reduce, if not eliminate, the appearance of raster lines from your final shots. Another feature enables colour separations to be produced that should be suitable for creating plates for printing and silk screen work. When used in conjunction with a motorised camera back, it is possible to leave the Amiga and Palette to process batches of images automatically.

This is an excellent package. It is simple to use and should allow non-tech people to produce professional quality photographic presentations with a minimum of fuss or mess. With a little practice and with the aid of the power processor and cutter/mounter etc. it is quite feasible to produce a handful of slides in some 20 minutes! All I need to do now is find some space on my desk to put MY Palette, when it arrives.

Price: £1,350 + VAT.

Contact: Burocare Computer Systems, 221 Kenton Road, Kenton, Harrow, Middlesex HA3 0HD. Tel: 01-907 3636.

The Bitmap Brothers

(SEE XENON REVIEW ON PAGE 10-11)

Read the review of Melbourne House's Xenon yet? If not, read it now! Read it? Now you will want to know who's behind the latest and probably best shoot 'em up yet for the Amiga.

The Bitmap Brothers are Steve, Mike and Eric, three coders experienced in creating computer games. Between them, they have written Scrabble, Monopoly, Scalextric, Cluedo, Chequered Flag, Backgammon, Match Point and QL and Amiga Karate. This is their first shoot 'em up, and their first as The Bros . . .

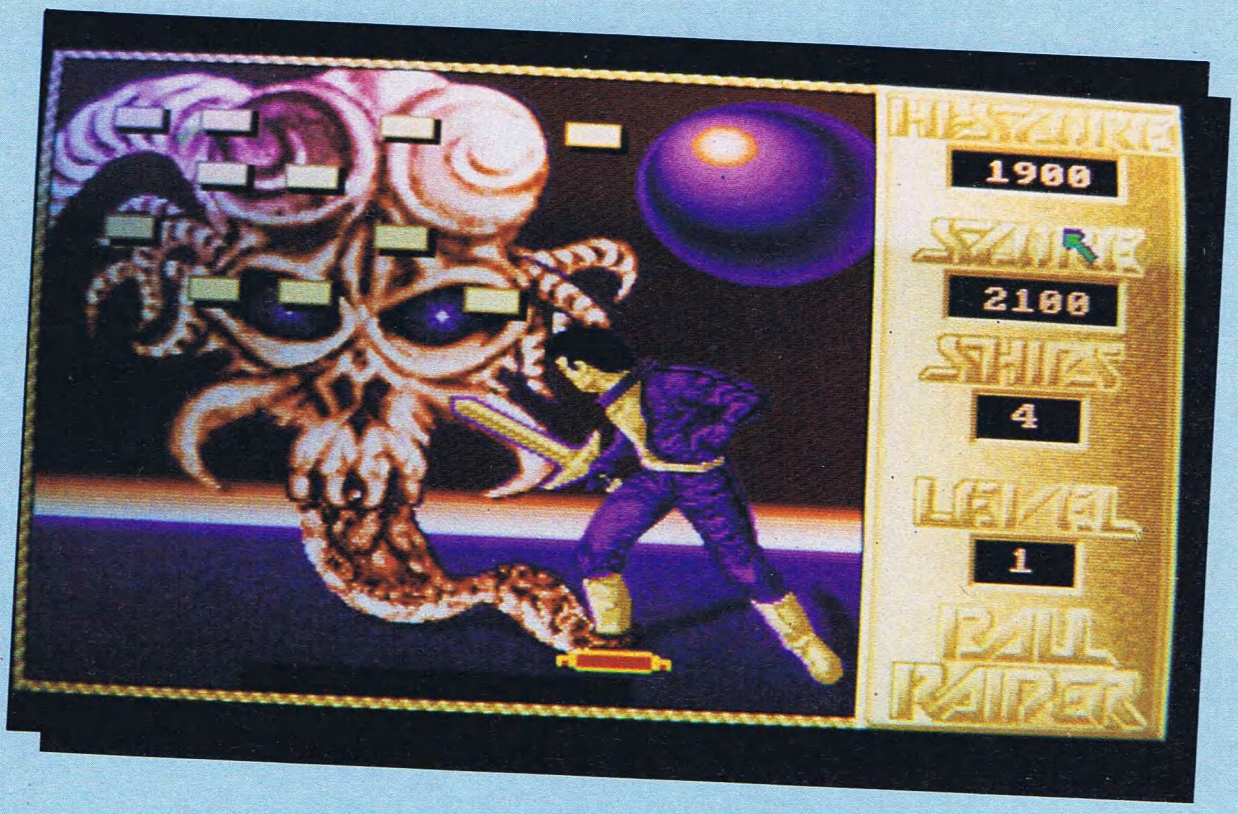
Xenon was started in June 1987. The original version was written for the ST, then converted to the Amiga. The detailed sprites were many in number, and needed too many colours to use hardware sprites, so they decided on software sprites allowing loads on screen at once. At one point, around 100 sprites are all there for the zapping! That is pretty impressive considering the game speed seems unaffected. They spent most time developing the scroll and sprite routines that form the basis of the game, and take considerable pride in the speed and feel of the game.

The only thing the brothers did not do themselves was the music, for which they called upon Dave Whittaker, whose samples and music live up to the quality of rest of the game.

Xenon is one of the games on Arcadia's Super Select coin-op, and will be tweaked slightly to suit the machine. The Bitmap Brothers' next game is still under wraps, and is thought not to be the kind of game suited to a coin-op, but going on the quality of Xenon, it should be something well worth waiting for.

BALL RAIDER

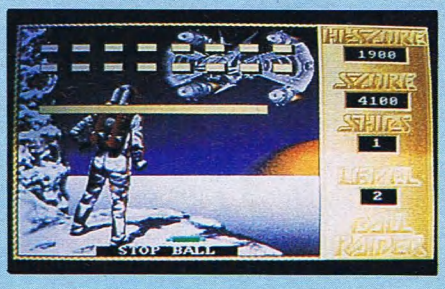
Diamond



By looking at the bulging muscles of the character on the inlay of Ball Raider, you'd expect some sort of Barbarian-type game, but think about the name, and you'll realise it's another excuse for a Breakout variant. The significance of the barbarian is that if you master the Ball Raider challenge, you can become one of the guild of warriors.

Most breakout variants have some small individual touch, and in this case, there are two. The title screen showing the barbarian staring at a mystical knitting needle is well done. The breaking out isn't confined to the game, as he is also breaking out of his underpants (check out that thingy-shaped muscle peeping out the side. Is that why it's called 'Ball Raider'?). The other noticable feature is that each level has a different picture as a background, not just a repeated pattern.

Ball Raider is played in the normal way, bouncing a ball off a bat to knock out rows of bricks. The background pictures make it look very attractive, but the ball can get lost too easily when it passes a part of background with a similar colour. The bat is joystick controlled which makes the game more awkward to play than it would if it were mouse controlled. Unlike Arkanoid, capsules don't have to be caught for extra power, but simply hitting the right bricks will alter the speed of the ball, allow you to catch it, give an extra life, or make the game move on to the next screen one brick early.



A few seconds of sampled music repeat throughout the game, and the few sound effects are good. Some of the backgrounds and title screen are very good, and do well to liven up an otherwise run of the mill game.

Breakout, was brilliant when it was new, and Arkanoid revived the theme very well, but I don't think it's a good enough game basis that it should warrant so many similar games. As breakout games go, Ball Raider is by no means bad and it has its fans at A.U.I. At £19.95 it might be considered pricey.

Price: £19.95

T.H.

Graphics: 8
Sound: 8
Playability: 7
Value: 7

JINXTER

Firebird

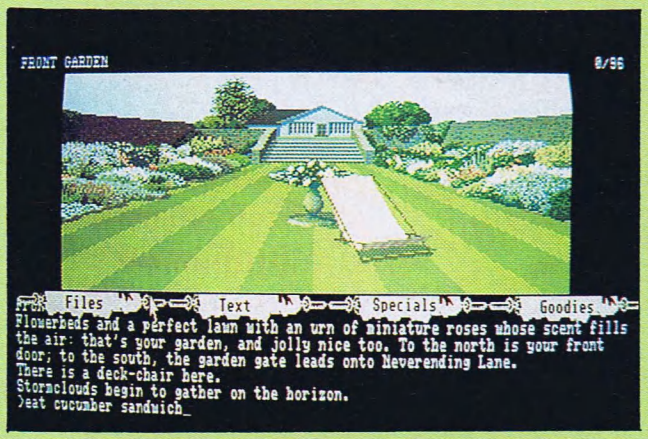
JINXTER is Magnetic Scrolls newest release, Andy Moss, Amiga User International's resident adventurer gets to grips with it in more ways than one.

First things first, Jinxter is not a classic. Before that statement starts Pens scratching onto Paper in abject horror, let me also say that it wasn't designed to be. Magnetic Scrolls have, of course, in the short time they have been with us, built a reputation for producing top quality advantures using state of the art graphics and a revolutionary Parser that lets you do just about anything you want to. Their scripts are always witty, descriptive and above all original. But they do not want just to make serious adventure software that takes months and months to finish, they also want to entertain and if that means releasing a fun game, that is easier and light hearted, then so be it.

Jinxter is fun. The puzzles, while not as hard as, say, in Infocom advanced level or a Level Nine biggie, are neverthless brain teasing and still give a lot of satisfaction in cracking.

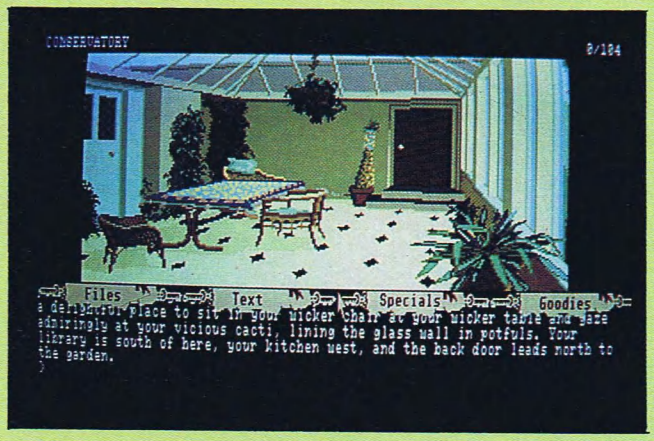
"The trick is to find out the route through and then start again to be able to finish."

The main features of Jinxter are that killing is no no. You cannot be killed or injured for one thing, and if you do get stuck there is help at hand in the shape of a curious character called The Guardian, who pops up when you come to a halt and gives you a bit of advice. One word of warning though, each time you get this touch of wisdom, your luck percentage will diminish. This may not sound too bad until you find out that the very last puzzle in the game requires you to have all your luck, so be warned. The trick is to find out the route through and then start again to be able to finish.



The story of Jinxter is set in the land of Aquitania (not a million miles from Kerovnia) and describes events when Lady Luck for some reason starts to desert everyone. The cause of this is the Bracelet of Turani which up to now carried its charms that kept the Green witches quiet and everything orderly. The Witches, having run out of Patience being Peaceful, concocted a plan to overthrow the power of the bracelet. They promised members of the Public untold riches if they would hide or conceal a charm from the bracelet. The result of all this is that the Bracelet has had all its charms stripped so its powers of luck and tranquility are fast running out.

Your task as resident hero, is to locate all the missing charms, find the bracelet, put it all back together and turn it against the Witches. Finding the charms will give you certain magical powers to use in the adventure, and they all have lovely names, for instance; Doodah makes it rain, Thingy makes the sun shine, Watchercallit makes things come back (remember the troll in Collosal Caves?) and cojimy freezes things.



The game plays very easily, although I must start to criticise the Scrolls Parser. There are silly things like opening gates which unless they are locked should not have to be opened first before entering. It is one area where Infocom have improved, providing you are carrying the right key, the door if locked will open. Why oh why should you have to input "open door with rusty key" if you already have it? Do not expect fabbo Pawn like graphics in Jinxter, yes, they are pretty, but certainly not as effective as the great Pawn (could it be that we are getting spoilt by too much of a good thing) but great by anybody else's standards.

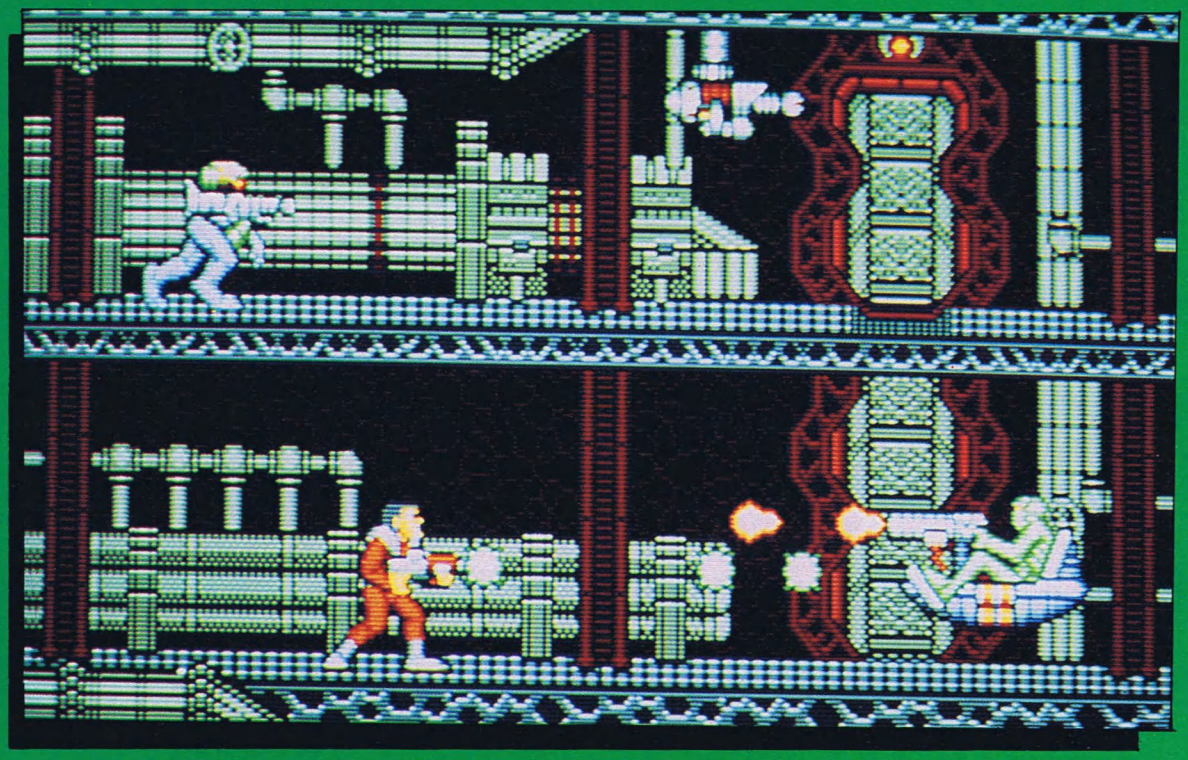
There is no faulting the documentation in Jinxter, along with the game disc, you get a newspaper, a Guardian memo suitably coffe stained and scribbed on, and a beer mat competition. As far as using the great Amiga to any new frontiers this release just puts it in cruise mode, but as a Piece of entertainment it is superb.

A.M.

Personal rating 7

OBLITERATOR

Psygnosis

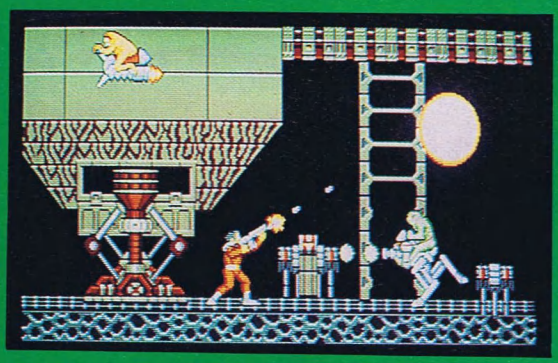


As anyone who knows Amiga games will know, a new Psygnosis game is something to look forward to. Going by the screenshots, their latest, Obliterator, will be no exception, but you can see that for yourself. The story behind it all goes a bit like this . . .

The inevitable galaxy colonisation was a hazardous operation. Most lifeforms were only too pleased to gain the protection and technology of the Federation. Of course, there were those who rebelled against this enforced ruling, and these needed to be controlled. For one race to overthrow the Federation would be a disaster, so an elite force of Obliterators, genetically enhanced to optimum physical and mental form was assembled.

"The game has twice as many screens, the screens have a third dimension, and it takes up a massive 880k of memory"

All was going to plan, the Federation was expanding, bringing law and order throughout the galaxy. There were few enemies, but they had now joined forces in a last bid for their anarchy. Inhabiting the centre of the galaxy, they had constructed the biggest and most powerful assault ship ever. The verdict reached by the elders was to send in the Obliterators. It gets worse; only one Obliterator has survived from missions gone by. You are that survivor.



Your mission: penetrate this mega-ship, and shut down its defence, engines and weapons systems, recover vital information on its structure, and escape before the elders destroy it. No sweat.

As you can see from the piccies, Psygnosis have returned to a similar style to that of Barbarian. In comparison, however, the graphics are far more detailed, the game has twice as many screens, the screens have a third dimension, and it takes up a massive 880k of memory. In terms of graphics and gameplay, Obliterator looks to be the best from Psygnosis so far. Tune in next month to find out for sure.

T.H.

TIME BANDIT

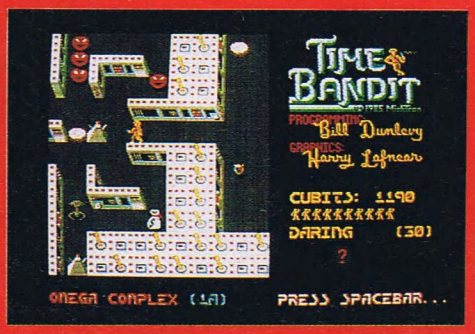
Microdeal

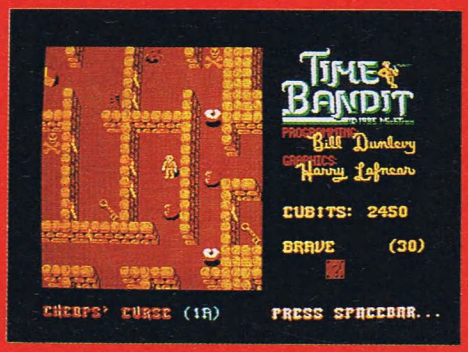
The subject of time travel lends itself well to a computer game. All those wierd mythological creatures and heroes of days gone by, and the scope of imaginary future beings is almost endless. Microdeal's latest uses this as a theme to inject some originality into a well-used arcade adventure game style.

Life can be a touch risky for a bounty-hunting time traveller. It seems wherever you go, everyone and everything is out to get you. There are however, a few characters with a little more on their minds than killing anything they meet. Being the adventurous guy you are, you decide to conquer the sixteen time zones available from the timegates. You have also set yourself the goal of reaching the end (whatever that may be!).

One or two people can play. If you choose to go it alone, the play area takes up the left half of the screen, with the right being reserved for status and credits. Two player mode gives each player about a quarter of the screen each in which to play. From the timegates, you can choose which era to travel to. A small area scrolls around with the player. Walking over the gate takes you to the main game.

Each era is presented as a scrolling maze. At various points around the maze you'll come across treasure to be collected, and portals which act like the generators in Gauntlet, supplying a constant barrage of monsters to kill. A single shot from your pistol sees to them. To get from level to level, keys have to be found to open locks. Open all the locks and you can stroll through to the next level.





A nice variation is one of the levels that plays like a game of Pacman.

To introduce a touch of adventure, some characters and objects you find will prompt some text input. A good idea, but it's spoilt a bit by the lack of instructions it understands. Most of the game is played in a similar way to Gauntlet. The maze scrolls in four directions as you run around looking for the keys, collecting treasure and shooting the baddies on the way, which can be enjoyable. A nice variation is one of the levels that plays like a game of Pacman. Because each player has an independent screen, you're free to roam away from the other player, unlike Gauntlet.

Some of the sound effects are very good, such as the gun fire, and alien explosions. Others aren't so good, but overall, sound is up to scratch. All the sprites are small, but most are detailed and imaginative. The backgrounds are quite good considering they are really simple mazes, although the scrolling could be smoother.

In short periods, Time Bandit is an enjoyable game. For £24.95, I'd want a more involving game. The different levels will prolong its long term interest, but many people might relegate it to the back of the disk box before it is played right through. There is nothing that is bad about Time Bandit, it just lacks that exciting something extra to keep you locked to your joystick. ***B.V.***

Price: £24.95

Graphics: 6
Sound: 7
Playability: 6
Value: 5

WEST GERMANY

Only 40% of Commodore's business today comes from English-speaking countries. Probably, its strongest country is West Germany. Chris Holmes looks at some of the reasons.

While the Amiga vs ST debate continues to raise high fevers in the U.K., the argument over which machine will be the new generation home computer has finally ended in Germany. Not surprisingly the Amiga won the battle of the 16 bit micros and it now seems that the once popular ST will soon become just another Atari failure confined to the computing scrapyard! Harsh words you may feel but the truth of the matter, contrary to the popular belief of some U.K. magazines, is that the Amiga 500 has outsold the ST by four to one in the German market ever since its initial release in May 1987. There have also been recent reports from Commodore Germany suggesting that they have now sold in excess of 100,000 Amiga 500 units. Add that sum to the existing Amiga user base of about 75,000 and you have the beginnings of a mass market.

"The rise of the Amiga 500 as a mass market machine has also meant that the German software companies have been willing to invest in the production of Amiga games."

So just why is it that the German public have opted for the Amiga rather than the cheaper ST? One of the major reasons for the Amiga's success if that it is marketed by Commodore. The reputation of Commordore in Germany is excellent. They are, after all, the company responsible for the world's largest selling home computer, the Commodore 64. Financially, the German subsidiary of the U.S. company is very healthy and its sponsorship of two major soccer teams Bayern Munich and Dynamo Kiev enhances their overall profile of economic prosperity. To the German public, Commodore represents a high quality computer company while Atari are seen to be the company responsible for video game machines that were fashionable a decade ago.

Another reason why the Amiga has outsold the ST is that the German community are more quality conscious than their English counterparts. They recognise the extra features of the Amiga and since an Amiga 500 can be purchased for as little as 1000 DM (around £330) only about 200 DM dearer than an ST, they tend to spend their higher disposable incomes on the superior machine. The rise of the Amiga 500 as a mass market machine has also meant that the German software companies have been willing to invest in the production of Amiga games.

Before the advent of the Amiga there were only two major software companies in Germany dedicated to producing computer entertainment. Now there are more than twelve. The one company that most gamers are familiar with is KingSoft. Although they had few commercial successes on the C-64 (excepting, of course, the majestic C16 Winter Events) they have already released a string of hits for the Amiga. Most popular of their recent titles are Mike The Magic Dragon and Amegas. Kingsoft have also promised a soccer simulation to coincide with the European championships. Many recent Amiga games in Germany are also using computer generated music to devastating effect. Since there are no shortages of Amiga programmers, many of them specialise in different fields like sound, graphics and programming, so those that program Paula can really make her produce some startling effects. (Watch out Rob Hubbard!)

"This game is so hot that it will leave burn marks over the most adept joysticks"

One other German company probably familiar with many Amiga owners is Rainbow Arts, the team behind Bad Cat Garrison, the game that's currently causing a stir in the U.K. For lovers of the game there's more good news as the main programmer behind the project, Andreas Hommel has promised a follow up some time in the not too distant future.

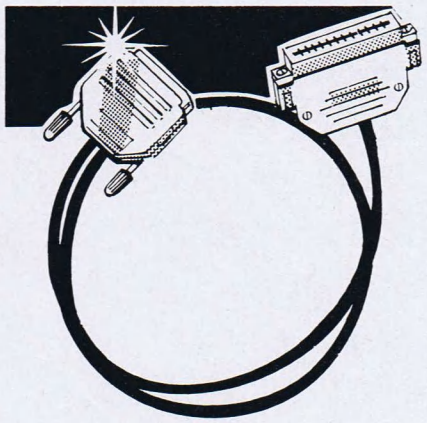
Andreas typifies the Amiga scene in Germany. He has ambition, technical expertise and most importantly a mind that is geared to the creation of computer games that are enjoyable to play. Another game that may possibly be released by Rainbow arts is the stunning Stingray. From the short demo I've been privileged to see, I can honestly say that this game is so hot that it will leave burn marks over the most adept joysticks. Stingray is a cross between Defender and Dropzone and it features super fast quadralax scrolling and ultra smooth animation. The business side is being led by the highly-reputed Databecker whose Textpro and Data Retrieval packages are being released in English.

The German software industry is quickly emerging as a serious threat to the U.K. While many software companies in the U.K. decide on whether to produce Amiga games, there are companies in Germany that have emerged solely to support Commodore's flagship. As a result there could be some quite spectacular Amiga games to come from Germany. Time will tell, so watch this space and all will be revealed!

C.H.

PRINTLINK

Do you need a printer for your Amiga? Andy Eskelson finds how your old 64 kit might save you buying one



So you are now the proud owner of a nice new Amiga. You are struggling manfully through the instruction books and have discovered lots of clever things to do with it. In a dark corner of a cupboard somewhere, lies your old C64 and printer, shoved there during the mad panic to unpack your Amiga. Consider this poor pair, after years of faithful service to be shut away never to see volts again. . . are looking at a long listing on your Amiga and wishing that you could get a printout of it. After buying your Amiga you did not have the funds to rush out and buy a printer for it. If only you could connect up your old MPS801 just to get a listing.

I wonder how often something like that has happened? Well, beavering away in Bradford is a Company called Trilogic and they have come to the rescue of all the old 64s and printers. In the process they have come up with a product that gives some of the functions and benefits that you would normally expect to pay something like £150 for. So what is this wonderful device? It's a printer buffer but one with a difference — one that will have you dusting off your old C64 and printer and finding somewhere to set them up again. For this, Trilogic charge only £30.

"I found that the Preferences Trilogic supplied were, in fact, the same as my own"

Physically, the Printlink comes in two units. One is a standard C64 style cartridge and the other, a smallish box that plugs into the C64 user port and also the Amiga's printer port via lead and mating plug. The instructions are very simple and are supplied in printing form. They can also be viewed on the C64's screen. However, you do not need a screen to use Printlink as the on screen instructions have only been provided for convenience sake. Directions are given as to how to set up the Amiga's printer profile via Preferences. I found that the Preferences Trilogic supplied were, in fact, the same as my own.

NOW FOR THE WARNING . . . This applies to any computer not just the Amiga or C64. NEVER plug anything into either computer while it is switched on! The I/O ports of most computers can be easily damaged by accidentally shorting out pins or causing sudden voltage changes by making connections when power is present.

"The Printlink is intended primarily as a text only system but it can handle limited graphics"

The instructions tell you to switch on the Amiga first followed by the C64. Then, if you are using an MPS801/3 printer all you need to do is tap the C64's space bar and forget it. When you next send a print command the C64 will act as a 60K+ printer buffer and as far as the Amiga is concerned the print job will have finished very quickly. The C64, however, will continue to send the print to the printer, in the normal way allowing you to get on with another job. With large documents this speeds things up enormously as some word processors do not allow you to resume editing until the print job is finished.

Several filters have been included in the Printlink software, to allow you to convert Amiga Ascii into CBM Ascii, force a line feed after every CR and to select a secondary address if required. Printlink will also work with Epson compatible printers when used with a suitable interface. Users of the Super-G (otherwise known as the G-Wizz) interface beware! I was unable to get this interface to work with the Printlink but I MUST stress that there was no aparent fault with either unit. The Printlink functioned faultlessly with the MPS803 and the Super-G works perfectly with the Canon PW1080A. It is probably due to a slight incompatibility somewhere between the two units.

To conclude, the Printlink is intended primarily as a text only system but it can handle limited graphics. It must represnt one of the best value for money buys about today. The only problem I now have to sort out with this arrangement is that of finding somewhere to put the C64 without cluttering up the desk!

One final thing to note is that the connectors on the A1000 are different to those on the A2000 and A500 models. So make sure to state your machine type when ordering.

A.E.

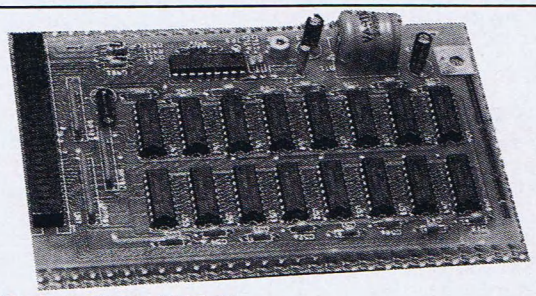
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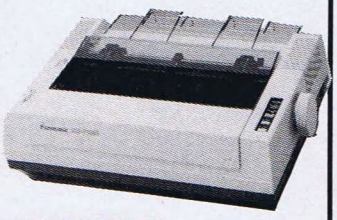
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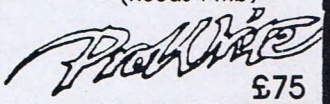


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MUDDLED MEMORY

Fast Memory — Slow Memory — Chip Memory — CONFUSED? Then let Ariadne Software, authors of THE KICKSTART GUIDE TO THE AMIGA, sort out your memory.

The situation as regards memory on the original Amiga 1000 was fairly straight-forward. The A1000 came with 512K of internal "chip memory" accessible by both the 68000 and the PAD (you could get a system with only 256K, but there wasn't much point); if you wanted to expand on this you could add up to 8 megabytes of external "fast memory" (also known as expansion memory), accessible by the 68000 only, and therefore not subject to cycle-stealing by the PAD. This situation has become confused since the release of the A2000 and the A500, by the arrival of a new form of memory generally known as "slow memory" — it is probably worth trying to explain this, though please feel free to ignore this section if this is your first

The situation on the Amiga 1000 was that available chip memory was checked by Exec on power-up; Exec would then swipe some of this memory for its own use for things like Exec library structures and the system supervisor stack, which was put at the top of chip memory from $07 E800 up to $08 0000. The rest of available memory was put by Exec into a "free memory list", ready for allocation by anything else that wanted it.

Later on, the system would scan for expansion memory, using a complex protocol looked after by a special library called "expansion.library". This would interrogate any add-on cards, looking for expansion memory (amongs other things); if found, this memory would be linked into the memory free list as fast memory, at the next available location somewhere between $20 0000 and and $A0 0000.

From then on, memory allocation was looked after by two Exec routines called AllocMem() and FreeMem(), or by higher level routines built on these such as Exec AllocEntry() and FreeEntry(), or Lattice malloc() and free(). Exec AllocMem() is called with two parameters, the first indicating how much memory is needed, and the second indicating various options, including what sort of memory is wanted — chip memory, fast memory, or don't-care-fast-if-available. This causes a block of memory to be removed from the free list, until released by a suitable call to FreeMem().

This was a nice versatile system; the only problem with it was that it wasted some chip memory on Exec library structures and supervisor stack, which didn't really need to be there and which took memory which could otherwise be used for Intuition screens, graphics structures, digitised waveforms etc. Since it rapidly became apparent that chip memory was very much at a premium on Amiga, this scheme was modified somewhat on the A2000 and the A500, by adding a new form of memory, now generally known as "slow memory". (To confuse matters, slow memory was once known as "ranger memory", while recent documentation tends to refer to slow memory as "fast memory", while referring to real fast memory as "expansion memory" — we shall ignore this.)

Slow memory is an additional 512K of RAM, built into the A2000, or available as an optional internal RAM-pack (together with real-time clock/calender) on the A500. This memory maps in up at the top, in an area previously reserved for I/O etc starting at $C0 0000, thus bringing the Amiga A2000 and A500 totalRAM up to a theoretical maximum of 9 megabytes. Slow memory is checked by Exec BEFORE it checks chip memory at power-up; if found, slow memory is used for things like ExecBase and the supervisor stack, instead of these being put into chip memory. The rest of slow memory not used for these structures is put into the free memory list; from then on it is treated by the system exactly like fast (ie expansion) memory.

The good news is that this gives you the maximum possible amount of free chip memory on the A2000 and A500. The bad news is that slow memory — as the name implies — isn't real fast memory; despite the fact that is lives high up in the memory map, slow memory is in fact on the same side of the gate in the Amiga bus as the PAD. This means that slow memory access suffers from cycle stealing when the PAD is handling high resolution or using a "nasty" blitter, despite the fact that slow memory cannot actually be accessed by the PAD (at least with the current chip set!). Be warned therefore that a program which uses high resolution or a lot of colours, or which does a lot of "nasty" blitting, will not run as fast in a one megabyte A2000 or A500 as it will in a system with real fast (expansion) memory.

There are two further points worth making, relating to two utilities provided on the 1.2 disks, called NoFastMem and SlowMemLast. The first is fairly simple: some early games programs tended to assume that any memory they found in the machine was chip memory, and they therefore won't work properly on a system with over 512K. To get round this, run NoFastMemory (by doubling clicking on the icon), which will go through the system allocating any memory that isn't chip memory so that these games will run properly; double click on the icon again to get the extra memory back.

The second point is more subtle: if you have a system with slow memory, then even if you add real fast (expansion) memory, this will tend not to get used as much as it should be. This is because Exec links the slow memory into the system free list BEFORE expansion. library links in the fast memory, which means that any remaining slow memory will always tend to get allocated before the real fast memory gets a look in. The solution is to run the program Slow MemLast, which will adjust the links in the free memory list so that slow memory is at the end of the list, so that it will get used AFTER any real fast memory. If you are adding expansion memory to an A2000, or to an A500 to which you have already fitted slow memory, we suggest putting Slow MemLast in your standard Workbench startup sequence.



THE XEROX 4020 COLOUR INK-JET PRINTER

I would imagine that there are a fair number of Amiga users out there interested in the Xerox 4020 colour printer, maybe because of the advert showing an on-screen picture of a house in the country, along with a perfect pixel-by-pixel paper copy below it. It's a good bet that many are just considering an upgrade to a printer that can really do the likes of Deluxe Paint justice when it comes to hard-copy. The 4020 is one of a few such machines and will give very respectable results, for a price.

The 4020 is an ink-jet printer, building up the image on paper by firing drops of liquid ink directly onto the paper. The mechanism used for the firing action is a set of piezo-electric transducers built into the print head, which literally "vibrate"the ink onto the paper and this in turn gives a very quiet noise level to the actual print operation — some 55dBA maximum is claimed by Xerox. This is much quieter than the average dot-matrix, some of which can be real screamers.

The ink transducers are supplied with ink via twenty individual nozzles built into the head, supplying the four main colours of ink — black, yellow, cyan and magenta — that the 4020 uses to build up more than 4000 other apparent shades.

They are supplied in clear disposable plastic tubes containing 5cc of a water-based ink. These are sealed at both ends with a tough, tin-foil like skin and each come with a removable plastic cap of the same colour as the ink inside — very useful as it is near impossible to tell the difference between black and cyan merely by looking at the neat ink.

You know when it is time to insert more ink of a colour as one of four "Ink Colour Out" green LEDs on the Control Panel will light up. Besides this the printer will normally not allow you to start a new job on low ink. It is then a simple matter of inserting a new ink cartridge. There's no danger of applying ink to the wrong reservoir as the insertion ends of the cartridges each have a moulded physical "key" and will only enter the throat of the correct one.

Acknowledging the fact that droplets of liquid ink on normal paper tend to run and spread out, the 4020 uses its own kind of paper which has one side coated with a substance having a rapid absorbancy rate without giving rise to blurring spreadout.

This paper needs a little care to make sure it is fed into the printer the correct way round, as the uncoated side is not very absorbent and will smear the ink all over the bail rollers which will then transfer this mess over the following paper for ages until stopped and cleaned. With cut sheets this problem could easily catch you out as both sides are of the same appearance. However, the coated side is much "tackier" to the touch due to it absorbing skin moisture as readily as ink.

Transparency sheets are also supported and are used for prints destined for overhead projectors.

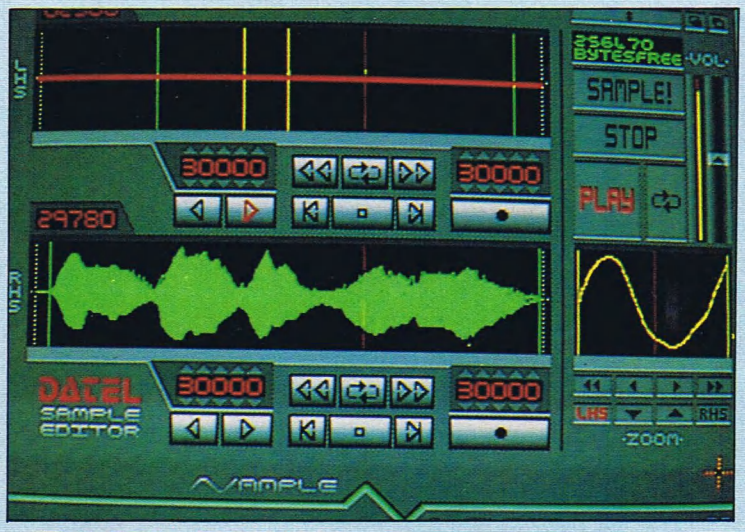
"The printer informs you when you need a fresh Maintenance Cartridge by flashing the 'Ready' LED on the Control Panel"

As well as inks and paper, there is one more consumable that the 4020 will need and this is a Maintenance Fluid Cartridge, which is basically a plastic

CONTINUED ON PAGE 52.....

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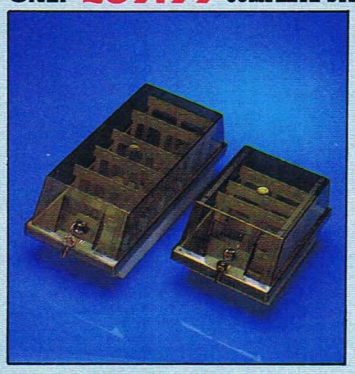
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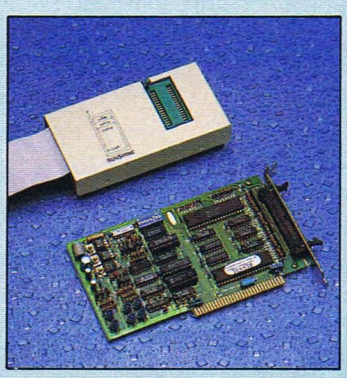
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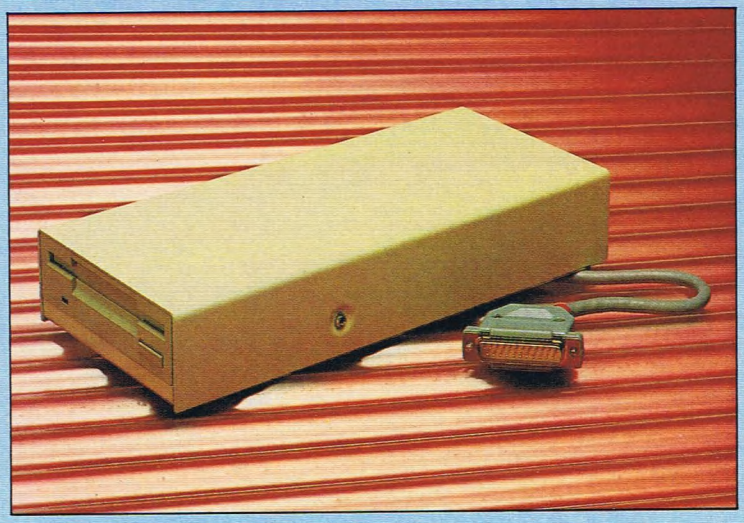
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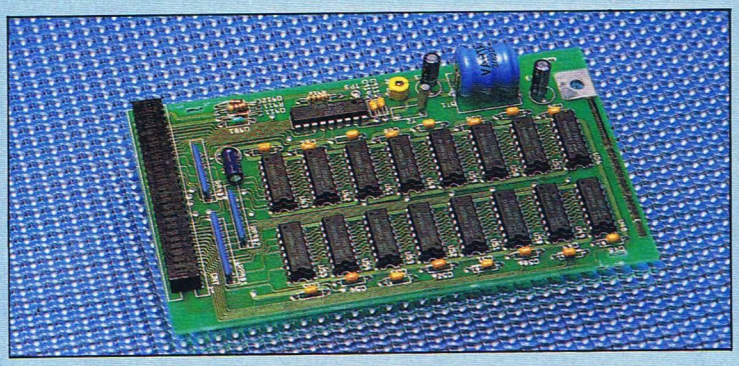
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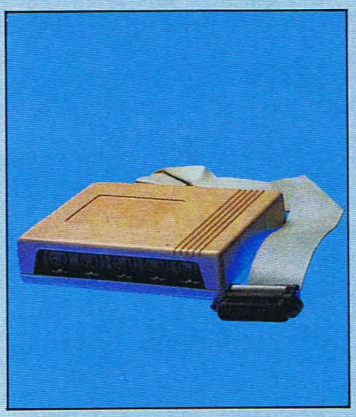


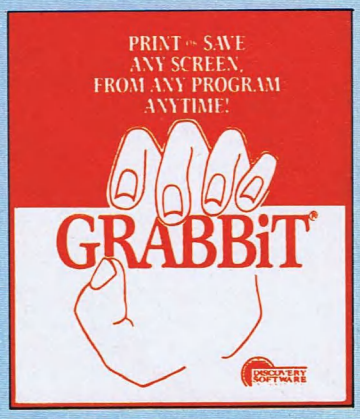


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... CONTINUED FROM PAGE 49

THE XEROX 4020 COLOUR INK-JET PRINTER

box similar in size to a video cassette, containing a 175cc bag of distilled water in one half and a very absorbent sponge-like material in the other.

These are plugged into the 4020 via a little port at the bottom front left of the printer.

The main purpose of the distilled water is to keep the ink nozzles wet during power-off time or to flush out the ink nozzles whenever required. The sponge material is used as a holding-pen for the used, dirty water. Whenever you feel that degrading printout quality could be due to a dirty jet or air bubbles in the system, just press a button at the back of the printer to activate what is called a "Recovery Cycle" — a fully automatic process that will take around four minutes, flushing out ink and debris by pumping the water around the nozzles.

I should add the water will also keep the nozzles wet during idle states of power-on time.

The printer informs you when you need a fresh Maintenance Cartridge by flashing the "Ready" LED on the Control Panel, which also has LEDs for the "Ink Colour Out" warning as described, a "Paper Out" LED and one more for power on/off.

There are finally the "usual" start/stop, line-feed and form-feed buttons on the Control Panel, all neatly mounted flush with the LEDs on the panel base and covered with a dirt resistant soft plastic skin.

When switching this printer off, be prepared for a minute's wait as the print head nozzles are what is termed "capped" with the maintenance fluid to prevent the drying out of the residual ink in the nozzles. Switching on has a smaller delay as the nozzles are duly "uncapped".

There is also a user selectable "Wet Shut Down" which is really a more long term version of normal shutdown capping, with the addition of completely flushing out the ink nozzles and is used prior to transportation or long storage periods.

This is a good time to note that the delicate mechanism of the print head on the 4020 does not take kindly to any rough movements, merely placing it on another table in the room will often stir up little air bubbles in the inks which somehow find their way into the nozzles and force you to make a recovery cycle to get the printer functioning properly again.

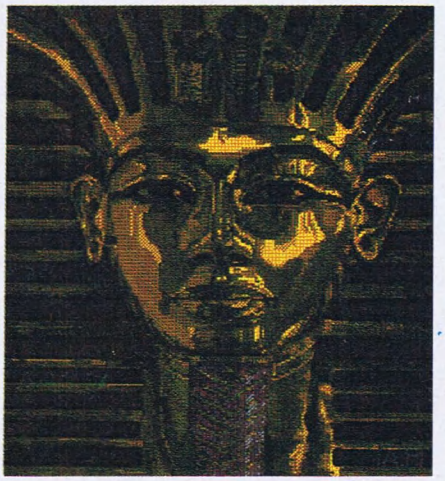
On to the back of the printer now. There is the parallel Centronics interface for linkup to the Amiga's (the actual cable is not supplied as standard), along with the following devices:
A Recovery Switch to initiate Recovery Cycle as described above.
A Self-Test switch; this will activate repetititve printing out of a line of various characters in seven main colours, to examine the bidirectional print for synchronisation with the previous line. An adjustment knob exists to adjust the print sync it needed in real-time while the Self-Test is running.

Then there are two dip switch modules, A and B. Module "A" allows for selecting printing of characters peculiar to a certain language, e.g. Finnish, Dutch etc. and module "B" selects the various power-up defaults, such as font selection, draft of NLQ, margin setting, etc.

As for printer drivers, the 4020 is very well supported in having two drivers to choose from, the Diablo C-150 found in Preferences or the Xerox 4020 found in the Devs/Printers directory of the Extras disk. I have used both drivers and could not see any visible differences in the end results of either when turning out graphics, although I find the Xerox drivers has the edge for text use.

The printer is light grey in apprearance and fits in very well with the Amiga's beige.

That's about it for the Tour-De-4020, save to mention that the image data buffer is quoted at 4.4K and an RS-232-C serial interface configuration is available if you want one.



Text quality is quite respectable in draft mode and very good in NLQ mode, speed here being around 40 cps.

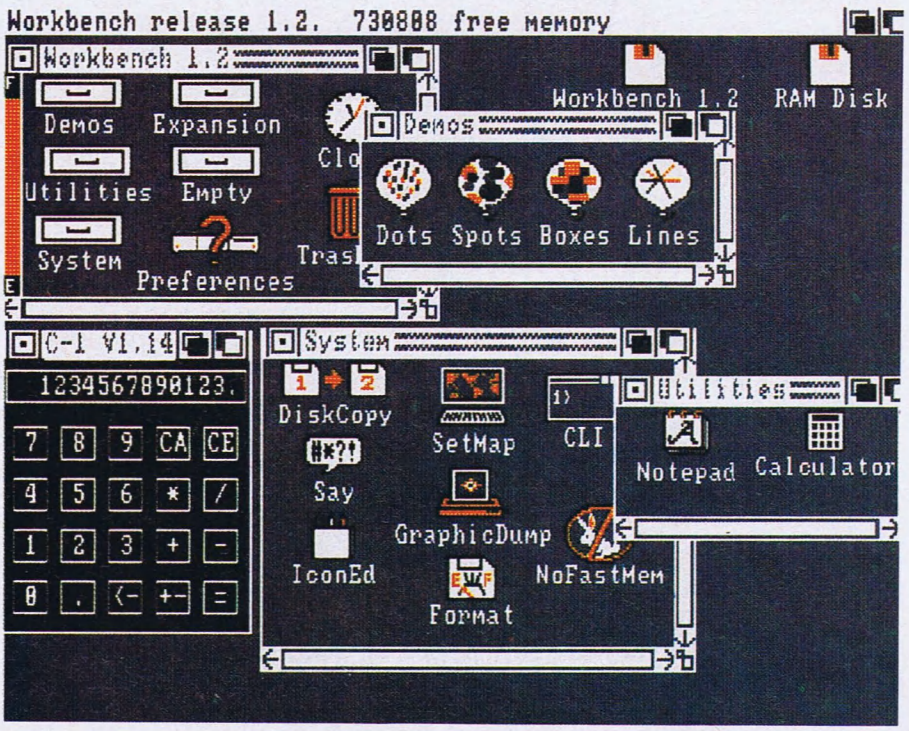
Draft mode is twice as fast and you can also use the other three main ink colours as well in this mode, but the speed then drops to 40 cps. As for the all-important graphic dumps, let me start by stating the properly setup 4020 is quite free from horizontal line mis-alignment and colour overlap which would otherwise give rise to the lining as seen on many of the cheaper machines — for me, the printer's main strength.

"Black is most used, dimming the appearance of the darker shades and duly runs out the fastest"

Having only four main ink colours, which are directly mixed to produce a further three solid "real" colours — violet, green and red, it is obvious that the 4020 has to achieve the large range of shades it offers by mixing the inks together.

This "mixing" is actually done by dithering the inks together on the paper with a high degree of precision.

Black is most used, dimming the appearance of the darker shades and



duly runs out the fastest.

I have turned out many dumps with this machine and I am always happy with the clarity of the prints at all screen modes; Hi-res interlace images reproducing the pin-point colours pixel-for-pixel very well indeed but it is still not perfect. Most shades printed out a bit darker than they appear on screen, with a few turning out very much darker indeed, although palette control before printout (Deluxe Paint's is very good) should allow you to lighten the offending shades.

Blue shades are the Achilles heel of the Xerox 4020 on the Amiga. All but a few lighter shades will print out in shades of purple.

In "Enhanced Mode" which is the way it should be set for best results, the 4020 prints at a horizontal dot resolution of 240 d.p.i. as opposed to the normal "draft" 120 d.p.i. Graphics mode speeds on non-page printers were never fast and the 4020 is certainly no exception; assuming a six by ten inch print size, the 4020 will take around 8 minutes for a 320 by 200 lo-res screen with 32 colours, to a make-a-cup-of-tea 26 minutes for a 16 colour hi-res interlace display of the same printout size. The times vary according to the colours.

Black and white prints are much faster and extremely sharp, although the desire to stay with black and white on this machine is unlikely.

However, all silver linings have their clouds and cost is the Xerox 4020's biggest and greyest.

The very expensive inks do run out at a rate which will be alarming to all but those with plenty of spare cash and don't forget you need the special paper too, which is not cheap.

The Maintenance Cartridges last a long time, thankfully when you consider the price of the things for what they are.

A fully covered page of colour could set you back up to fifty pence a time depending on how much ink the dump actually takes, as the paper and most especially the inks are very expensive.

A usefully stocked setup will cost you around £1,300 at present prices. I recommend joining a club such as ICPUG for the discounts among other things — with the running costs of this machine the subscription will soon pay for itself.

Conclusions

Business Amiga users may highly rate this printer because of its ability to produce sharply defined coloured reports, graphs etc., with the utmost ease and will no doubt be able to take the rather high running costs in their stride.

As for the average amateur Amiga user — who will appreciate this printer more than any business for sure, I think it is fair to say that not too many will entertain the present asking price.

I personally feel that even if the printer itself dropped substantially in price, the high prices of the supplies unless similarly reduced would still deter many from the idea — if you think printer ribbons are expensive wait until you use this machine for a month or two! But who knows, the price of the A1000 fell in price, maybe this piece of machinery will do so in time.

If you have the funding and your heart set on a really high performance colour printer, you will certainly be happy with the overall performance of the Xerox 4020 printer, for both text and graphics applications.

The prices:

Xerox 4020 colour printer	***£1,250 + VAT***
4 colour ink replacement pack	***£19.95 + VAT***
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AMIGA USERS

As many new readers — and new Amiga users — will not have seen previous issues in which we have published articles from the Amiga Users Group, we thought that it would be useful and helpful to retrace the steps that brought into being the first Amiga user group in Europe. John Broad who is a leading member of the Group takes a lighthearted look at how it happened and how he himself got involved in this focal point for Amiga enthusiasts.

The UK Amiga Users Group, where did it all begin? Before one could answer that a digression to the historical side of the first encounter might help. I suppose my first exposure to the Amiga was way back in the dim and distant past of early 85 or was it late 84, senility and writing editorials fuddles one's brain when it comes to remembering time. Anyway, I was huddled in a friend's house at the time, observing him clattering away at the 64 keyboard. Watching someone programming machine code is about as exciting as watching wood warp so it was not too long before I browsed through his latest copy of Byte magazine (the 16 bit techy mag from the States). There it was - a preview and bench test of a new computer called the Lorraine, new vocabulary was abound, string gadgets, multi-tasking, thousands of colours, blitters etc. etc. This left such a lasting impression that from that day to this I have bored people senseless with the story, so why should I spare you!

Most people in this country and the States have graduated to the Amiga from the Commodore 64/128 circuit and in that respect I'm no different. Other people not interested in the serious side of computing have moved on to the Atari ST range. I have no claim to fame on the 64 but have left for posterity 3 or 4 adventures lodged in ICPUG public domain 64 library called Another Bloody Adventure, Sod It, and Starship Hero In Trouble (the acronym for which I will leave to your imagination). No offer came from Infocom about my sophisticated parser routine so this sounded the death knell of my 64 career.

Now living in Leicester, the headquarters of the UKAUG has one major attraction, namely the Cavendish Commodore Centre, the mecca for everything Commodore. The owner - a guy called Malc, specialised then as he does now, in all things Commodore so it was not long before I got to know a lot of other regular customers there and shared the common interest. We even graduated to having a local group of 64 users who met fortnightly. My punishment for my trade discount was to sort out Malc's customers with Superbase and Superscript problems, a task which has left me scarred with intermittent psychotic episodes ever since.

During the autumn of 85 or thereabouts Commodore announced that they were releasing the Amiga to software developers and the gang of 6 were summoned to Malc's house for a meeting. To obtain one of these machines one had to be a software developer so the object was as plain to see as the memory location on the Amiga. Lee Gibson, mad keen on graphics and second prize winner in the CCI mag (1984) Commodore 64 graphics competition (I swore to him that I would not tell anyone for fear of embarrassment so I write it here) was going to do graphics and the rest of us chip in with odd bits of code. The upshot of all this was a couple of weeks later a developer's Amiga (American with 110 volt PSU) arrived. This was the beginning of the end of sanity.

Many months later the Amiga A1000 appeared and needless to say the Cavendish, through Malc's enthusiasm for the Amiga, stocked them all. During the preceding months Lee was furiously trying his best to get the beast to obey so we did not get much time for our little bit on the developer's system. Kevin - the backbone of the Amiga users group - made a monumental decision in the spring of 86 and that was to leave the security of British Telecom and work for Malc in the shop. Now he could not only play with the Amiga all night at home but dabble during daytime as well. Trevor, who pioneered the BBS, was already working at the shop at the time repairing 64s and such like. These people mentioned were instrumental to the conception of the UK Amiga Users Group.

It was the late summer of 86 that the UKAUG was born. The local band of 64 users were drifting over to the Amiga one by one and it was not long before the idea of forming a group was postulated. At the end of the day Lee, Malc, Trev and Kev tossed the idea about and the rest is history. The group will support and contribute to the public domain library, have a bulletin board aand of course, a newsletter. This was the basis for the group. The only drawback at that time was the newsletter. We had to find some fool to do the editing etc.

The phone rang awakening me from my customary evening siesta. "Hello" I said, wishing death to the perpetrator on the other end.

"Hi JB! Do you want an Amiga?"

"Stupid sod" I thought, "course I want one. I have been saving my rubles up for months."

"Malc says he will loan you one."

"What's the catch, a contract on Jack Tramiel?" I said.

"No catch but you can help us out with a spot of editing as we are going to produce a newsletter."

"Why me?"

"You have got a spell checker" came the reply, "and it will not take you long."

"Sounds like a good deal to me," I thought. In hindsight, I was well and truly suckered!!

The Amiga arrived plus an early version of Scribble, so the content of the first newsletter was ported over to my 128, as it was the only machine at that time in our possession with software that had a spell checker. A spot of editing turned out to be some 60 pages of text including typing in 30 disks of Fish PD plus 10 disks of the Amicus, as well as a page or two editorial on the group to which I was elected as editor. I took a weeks holiday from my job as a Nursing Officer at the School of Nursing as the lads wanted the first issue out in a fortnight - the lenghts some people go to to get hold of an Amiga.

The first issue was printed out on the MPS 1000 (three ribbons and 300 plus sheets to get 60 readable pages). The first print run of 200 newsletters was done on the shop's photocopier by Trev following the final cut and paste using a pritt stick and blunt scissors. The upshot of all that was the page numbers got forgotten, a source of merriment amongst our early readers. This is in marked contrast to the latest newsletter issue which was compiled by Kevin, Yuri and myself. The main

GROUP

body of text was fed into City Desk on the Amiga and with the help of Jet set fonts which we down loaded into our Epson laser we have prepared another 60 odd pages. These camera ready pages were despatched to the printers the next day. They will print, collate and bind the 1500 copies necessary for our expanding group.

The newsletters are very much the backbone of the group with members as far flung as Japan and America. Yes, some of the original Amiga developers are readers of our newsletter which to this day has remained A4 size. Issue 7 was memorable as it contained pictures taken of new products at the recent (last year) Ami-Expo in New York. Intensifying underexposed pictures of the pillow man and the dancing fools snatched from a OHP at the conference is another string to our bow. Issue 7 also contains what was then the latest in the Fish and Amicus PD library, plus listings of our own ever growing UK library.

Issue 8, at the printers at the moment, carries a résumé of the Fish collection 1 to 80 plus the early works from the Amicus range. At £3 each for the public domain disks including the disk, they contain a wealth of information for those up and coming Amiga programmers and judging by the volume of requests, are still very popular.

Malc has just returned from the latest Ami-Expo held in Los Angeles with 90 new public domain disks so it will leave no one guessing what will be in issue 9. Along with the PD he has brough back many new products which, as I write, we are busy evaluating. Programs such as Professional Page the all new DTP, DOS 2 DOS - a utility to convert MSDOS & ST (wash your mouth out with soap) to Amiga and vice-versa, Quarterback - a hard disk backup, the 64 emulator (yuk) and many others that should be reviewed by copy date of issue 9.

So what has happened to the group lately? Trevor left last year and is doing his own thing. Kev left the shop in November and has joined Lee in freelance programming for the Amiga. Some of their work you can find on the shelves. Tony, alias Hippo, has completely disappeared without trace so if anyone knows of the whereabouts of three and a half hundred weight of excess adipose tissue then tell him to return the Compunet modem. As for me, the inimitable JB, I finally hung up my nurse's cap after 16 years in the Health service (I joined as an 11 year old) and joined the Cavendish. This has helped in the fact that I can run the group with the aid of others and people can still find me asleep as usual.

The United Kingdom Amiga Users Group (UKAUG) can be contacted between 9.30 and 6 Monday to Saturday, at 66 London Road, Leicester, LE2 OQD, England. (0533-550993). The BBS (TABBS) The Amiga Bulletin Board Service can be accessed between 6pm and 9am Monday to Saturday and all day Sundays on 0533-550893. The group is of course affiliated to the top American Amiga groups plus those influential ones in Australia and Europe. Discounts on hardware and software are available to members of the group, which is the biggest solely Amiga User group outside America. Membership is £20 per year for UK mainland, £30 for European members and £30 for the rest of the world. I close by thanking our many regular contributors for the excellent articles. Thanks lads everywhere.

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DATARETRIEVE

Abacus are releasing packages, translated into English, created by the leading German software developer, Database Len Keighley tests out their database program

DataRetrieve is a new database mangement software package from Abacus. Written by A Claassen and G Neukamp. It creates, modifies and controls database files in a similar way to Commodore's Easyfile for the C64. However, the additional features provided by the use of the Amiga are extensive. These features include automatic data validation on input, up to eight different database files open at any one time and comprehensive search and indexing facilities.

DataRetrieve uses the concept of masks or templates to process information. Data therefore passes through the masks as it is either input or output. The mask also specifies the position of various data items held on a database record. In addition, masks are used to select which data items are to be displayed on the screen, printed or input. Database files and masks are completely separate from each other. A database can utilise several masks or a mask can be utilised by several databases. There are three forms of mask, Screen, Print and List. The last two are both used for producing reports. The Print for multiple line reporting and List for single line reporting.

Unlike some database packages DataRetrieve dos not store all of a database file in memory, which is then subsequently manipulated before returning the whole file to disk. Instead only the currently displayed record is present in memory, which is then output to the disk only if it has been amended or is a new record, before passing on to the next. As each record requires an access to the disk, this approach is slightly slower for each record than when all are held in memory. However, it does have two major advantages:-

— The number of records stored is only restricted by the size of the disks not the memory capacity of the machine.
— The data is safe from corruption or loss due to hardware or power failures. Only the changes to the record currently displayed will be lost and the unchanged record will still be present on the disk.

"Up to eighty indexes can be created on a database file and each holds the value of the data item selected"

The authors, to their credit, emphasise that this storage method does have a disadvantage. As the number of records held on a database file increases, the time taken to search for a particular record also increases. In large files this can be quite significant. However, they do provide a solution to this problem in the form of indexes. An index (a separate file) can be created on any data item held on the database. Up to eighty indexes can be created on a database file and each holds the value of the data item selected, along with a pointer back to the parent record on the main database file. This speeds up the accessing of the required record, by moving the search to a smaller, more compact file. In addition the index file can be sorted into ascending or descending sequence. The use of indexes in this way is similar to the method outlined in the ISAM (Indexed Sequential Access Method) article printed in the October 1986 issue of CCI.

When setting up a new database file the characteristics of each field held on that file must be entered. These consist of:-

Field name	**Text**	*Alphanumeric (No validation)*
Type	**Calendar**	*Date format validation (US format)*
	Time	*Time format validation*
	Calculator	*Numeric only*
	Choice	*Validated for specific values*
	IFF	*External IFF file names*

When all the data items have been entered, amendments can be made by use of the Screen Editor, to restrict the number of characters that can be entered for a field. i.e. M or F in a field for sex. This facility also allows fields to be highlighted in different colours and in different shaped boxes. Text not directly relevant to the fields can also be entered, for use as sub-headings etc. Data items for one file can require the use of more than one screen and this is handled by using the sliding bars arrangement common to Amiga windows, to show different parts of the Database record. The flexibility of the package seems endless. The maximum length of an individual field is stated as 32,000 characters and there is no reference to how many fields one database file can contain.

The production of reports is also extremely flexible with the ability to create headings and footings for reports and page throw on any setting of any given field.

DataRetrieve is a comprehensive and complex package and should prove useful to the expert user. However, the manual does not explain the different features very well and even the step by step introduction tends to leave the user up in the air at points. This is a pity because it is the only blemish on an otherwise excellent piece of software and one which when mastered should supply all your data storage and manipulation requirements.

L.K.

Price: £49.95
Contact: Precision ***Tel: 01-330 7166.***

TERRAMEX

Grand Slam



One of the key factors in a game's sales success must be its graphics. It can be hard to resists a game with excellent backgrounds, or cute characters. Terramex scores on the cuteness of characters which are instantly extremely appealing.

Once again, the world's existence is threatened, this time by an asteroid heading straight for it. This catastrophy was prophesised by the eccentric genius Albert Eyestrain, but when nobody believed him, he disappeared in a sulk, and has not been seen since. Now time is running out, and only he can save the earth with his genius.

One of five characters can be chosen to undertake the mission. All of them are just as eccentric as each other, including a stereotype English explorer and a Chinese tourist. It's up to you to decide who will be best for the job. Choose your character and you'll be transported to a blazing desert to begin the adventure.

"Jumping on a nearby hoover gives you the ability to fly up into the clouds (as hoovers tend to do)"

Terramex takes the form of what is now a standard arcade adventure of the flip screen platform variety. The first problem is how to get off the two available screens. Jumping on a nearby hoover gives you the ability to fly up into the clouds (as hoovers tend to do). The next lot of screens have a decidedly heavenly look with clouds to walk about on and columns holding them up. Deadly rain-drops plop from saturated clouds at random. Because there is no way to tell when one might drop, they can be somewhat annoying.

Exploring further you find an umbrella, a flute and a unicycle among other things. The adventure part involves carrying the right objects in the right situations, which usually gives access to more screens.

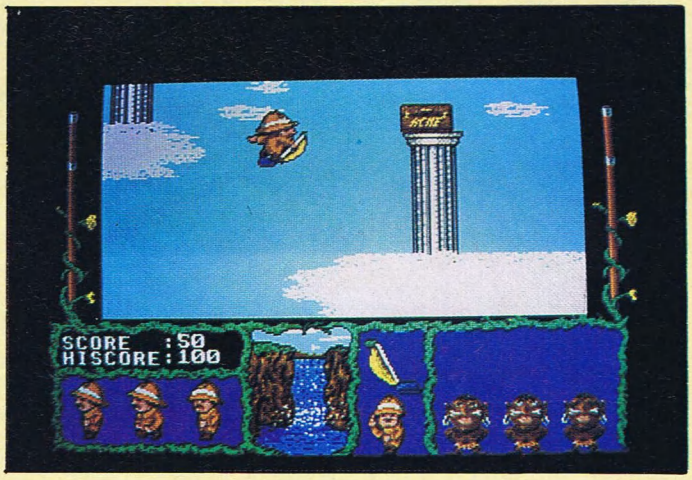
A passing glance at Terramex could leave you thinking it was an excellent game. However, playing the game you find little more than an average collect 'em up. This isn't to say it's a bad game. The sprites are detailed and pleasantly animated and coloured, and add a lot to the game.

Some rather mundane music can and usually will be toggled for sound effects. Most of these are sampled and work well, like the plopping of rain and the character's death cry, although a few more would have been nice.

Terramex has taken a popular game-style and enhanced it with well drawn graphics, but has left in a few small, but annoying points that detract from the fun. One is the unpredictability of the drips and those things that pop out from the rocks. Another is the way you get put back two or three screens sometimes when you die.

Young players will find Terramex really attractive, although the backgrounds may not come up to the excellent standard of the sprites in detail or variety. If you want a game to map and give some thought to, Terramex should certainly see to your needs.

T.H.



Graphics: 8
Sound: 7
Playability: 7
Value: 6
Price: £19.95



GOLDEN PATH

Firebird

It has definitely been a month for arcade adventures, with Terramex, Dark Castle, Time Bandit and Golden Path all at once. Interestingly, each one has taken a different approach, with varying adventure elements. Golden Path is probably the most adventure orientated of the lot.

A growing habit among Amiga software producers is to include a scenario in the form of a novella (yawn), and Golden Path is no exception. Your task is to follow the golden path to enlightenment. You take the part of an ageing Chinaman complete with that authentic two foot long 'tache. He may be getting on a bit, but he hasn't lost his touch when it comes to karate. One of his savage kicks can send a goblin tumbling wildly across the screen. His punches are not at all bad either.

Each of the 37 screens is viewed from the side. A miniature picture of the location at the bottom of the screen shows the path, which often forks giving alternative routes. This is helpful, as the path does not show on the main screen. Control of the character is via the mouse. Shifting the cursor in the direction you want to go moves him, and perhaps a slightly initially confusing method of cursor position and clicking can make him pick up, use and throw objects, and also kick and punch.

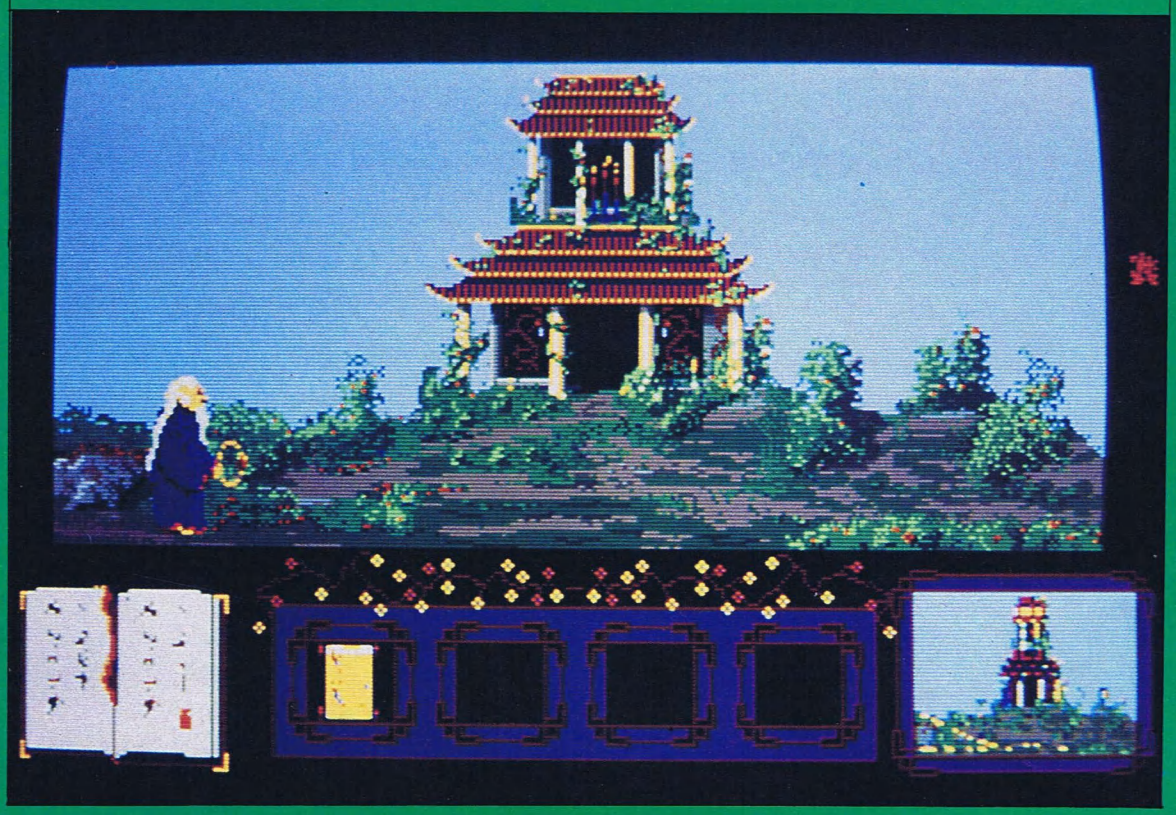
"Some of the scenes set indoors are a use effective shading and in most cases they do look very beautiful"

Most of the screens are set in traditional Chinese country scenes. The style in which they

have been drawn in gives them a rather untidy, very 'dotty' look. Some of the scenes set indoors are a use effective shading and in most cases they do look very beautiful.

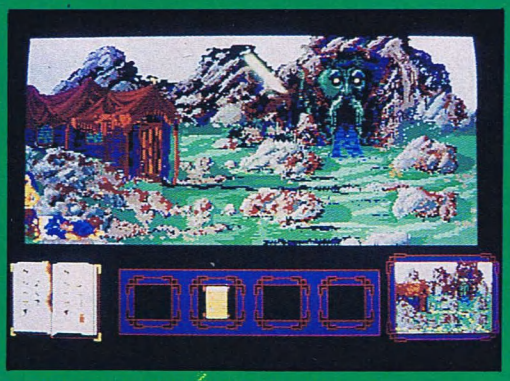
boredom threshold has got to rise!)

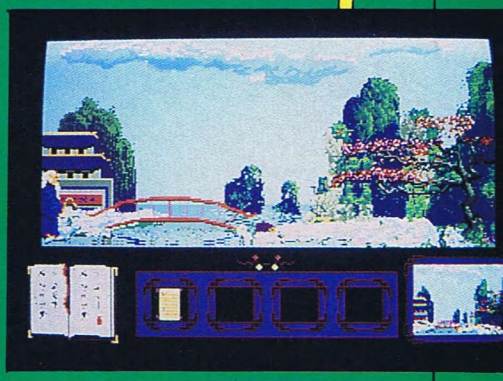
The oriental music during the game is a simple piece, but a few sampled war cries give the fights more bite. Most of the



The problems involve picking up objects, and using them in the right places. These vary in difficulty, some are as simple as opening a door with a key, but others need more thought. Clues on how to solve these are available from a book you carry with you.

If you have a great deal of time and patience, Golden Path will be one of the most appealing arcade adventures around at the moment. The trouble with this sort of game is that a lot of time can be spent trying to work out how to get anywhere, without much action in between. I was on the verge of boredom more than a few times. (My editor says my





sprites are fairly well drawn and animated, but even so, there is still the odd bad one.

Apart from the awkward control method Golden Path is above average in every respect. Arcade adventure fans now have a growing range to choose from, and this is certainly as good as the others. I'm not sure it would be my first choice but no doubt it is a challenging adventure that will find many admirers. *T.H.*

Graphics: 7
Sound: 6
Playability: 7
Value: 7
Price: £19.95

CRAZY CARS

Titus

Unlike some home computers, the Amiga is a very much an international machine. As well as from Britain, there's a wealth of software hailing from all manner of countries world-wide beginning to hit the screens. A lot of the Amiga's early stuff came from the US, and now there's just as much originating in Europe. Titus, a new software house from France are breaking into the 16-bit market with their first release, Crazy Cars.

Following in the style of Out Run and Test Drive, Crazy Cars gives you the chance to take to the wheel of one of four high performance sports cars: a Mercedes, a Porsche Carrera, a Lamborghini Countach, and a Ferrari Testarossa (of course!). In the best tradition of race games, you have to get from Florida to Malibu through six stages, each within a time limit.

You start out in the Mercedes, racing against all those other cars you would rather be driving in. The conventional view is used with the back of the car in the foreground, and the road stretching out toward the horizon. At the roadside, you'll see signposts flashing past, some with the Titus logo, and others giving advance warning of the bends ahead, although these are of little use as they're small and move in large steps making them rather hard to follow.

"Not only are there bends and other cars to contend with, but the road also has dips and bumps of varying heights"

The 3D movement of the road is obtained by horizontal bands which work well at low speeds, but at top speed simply flash from one shade to another. Some rough shading at the sides of the road also gives the effect of movement. In contrast to the jerky movement of most of the game, the road twists into bends very smoothly indeed. Not only are there bends and other cars to contend with, but the road also has dips and bumps of varying heights, causing your car to jump into the air, losing traction and speed. If you're going fast enough, you might just jump righ over an opposing car!

Completing each track is not really difficult, and it doesn't take much practice to complete the lot. It relies not so much on tight time limits for its difficulty, but the number of courses. After completing the sixth course, you get to drive the next car over the same courses. A screen similar to that of Test Drive shows the car and specifications.

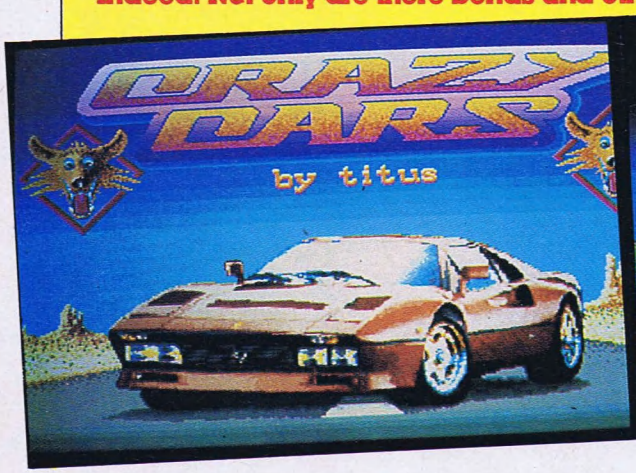
There are some very professional sound and graphics outside the actual game, such as some excellent sampled rock guitar music and title screen, and the 'game over' screen complete with sampled forest wild life sounds. The in-game sound effects are realistic, although these are only the engine and tyre skidding noises.

"Crazy cars really hits the mark where it counts, in playability."

I would have liked some more variation in the different stages. The only noticable differences between one and another are a different colour scheme, and a different scrolling horizon. Yes, it could be better in places, but Crazy cars really hits the mark where it counts, in playability. It's great — very easy to get into, and a lot of fun to play. Because of the lack of difficulty, and variation to an extent, I don't think its appeal will be terrfyically long lasting. As a first release Titus could certainly have done a lot worse than this, but I think there's still a lot of progress to be made with this sort of game. If you're looking for a car race game, Crazy Cars is certainly on par with it competition and well worth consideration. Recommended.

Price: £24.95

T.H.





Graphics: 8
Sound: 8
Playability: 8
Value: 7

VIRUS II
THE MOVIE
On Viruses, and How to Kill Them

This article concerns the SCA virus and its descendants on the Amiga — what they do, how they do it, and how to kill them. By Harry Broomhall (research and virus zapping) and by David Parkinson, the article is intended to correct misapprehension concerning the virus, particularly in the media. The article first appeared on the COMPUNET network for Commodore 64 and 128, and Commodore Amiga.

Introduction

A great deal of nonsense has been written recently on the subject of the dreaded Amiga virus. The virus, it is implied if not stated directly, can completely destroy all your software and wreck your computer; it will then (presumably) leap out, strangle the cat, and proceed to knock your house down. The truth is more mundane. The SCA virus started as a silly joke which got out of control; under normal circumstances it does no damage at all, and it is also very easty to kill it and to prevent reinfection, as we shall explain later. The SCA virus is only really of interest for the light it throws on computer viruses in general, and the interesting parallels these show with the spread of biological viruses in the human community.

About the SCA Virus

The SCA virus for the Amiga has been something of a success story in computer virus terms. Now that virus test programs and "antibodies" are freely available, some Amiga owners have been shocked to discover that something like 70% of their bootable (system start-up) disks are infected. This success probably reflects the fact that the Amiga is a complex and sophisticated machine, the internal operations of which are only now coming to be widely understood; it may also reflect the fact that the SCA virus itself is simple, but rather clever.

The way the virus works is as follows. Normally, the virus lives on the "boot track" of an Amiga bootable disk — ie a disk which is used to start or re-start ("re-boot") the system. It can ONLY live on bootable disks — there is no way at all that an ordinary data or program disk can be infected.

A disk's "boot track" contains code which is read in and executed as part of the process of system start-up. Normally, this code does very little, except to look for the rest of the DOS (Disk Operating Software) in the Amiga's internal ROM memory, then hand over control to that. The purpose of reading in and executing code from a boot track is to allow non-standard start-ups if required: unfortunately, this also allows the start-up process to be subverted by the virus.

On an infected disk, the virus replaces the normal start-up code on the boot track. When the virus code is read in and executed, it copies itself into a region of memory usually reserved for "system stack" then "wedges" itself in by taking over certain "system vectors", particularly ones involved in re-starting the Amiga; ie it interferes with the normal operation of the machine, so that any efforts to re-start it will be intercepted by the virus. It then proceeds with ordinary system start-up as if nothing had happened.

All is then well, until such a time as you decide to re-start the machine, by re-booting off another disk. (This is achieved by holding down three keys together, which are the CONTROL key, and two special keys called CBM and AMIGA). At this point, the virus intervenes; it checks if the new Workbench is the same as the old one, and if not copies itself onto its boot track, so that the new disk is also infected. Normally, it does nothing to indicate that this is happening; every sixteen times it copies itself. However, it lets on that it is there by blanking the screen, putting up a rather pretty banner, and printing

Something wonderful has happened —
Your AMIGA is alive!!!
And, even better . . .
. . Some of your disks are infected
by a VIRUS!!!
Another masterpiece of
The Mega-Mighty SCA!!

It then gets on with starting up the system from the new Workbench as usual.

At this stage is might well be asked — what harm is there in this? The answer is — in normal circumstances, absolutely none at all. The people who created the SCA virus were not at all malicious — they were just having a silly joke, and showing off how clever they were. What they overlooked was that some copy-protection schemes — as used by some games software — also make non-standard use of the boot track. The virus will interfere with such schemes by overwriting the boot track, thus preventing these games from running. Not so funny.

Killing the virus

Fortunately, the people who created the SCA virus wrote into it a mechanism for switching it off and getting rid of it; killing the SCA virus is therefore very easy, can be done by anyone, and requires no special software. However, to detect the presence of other strains of virus will almost certainly require the use of additional diagnostic software.

To find out if the virus is currently in your Amiga's memory, perform normal CTRL-CBM-AMIGA re-boot, but then HOLD DOWN THE LEFT MOUSE BUTTON while the system re-starts. The SCA virus checks for this button being down when it is invoked; if so, it disconnects itself from the system, then flashes the screen GREEN briefly, just before the normal start-up display of a hand holding a Workbench disk. So hold down the left mouse button while you boot, if you get a green flash, it means that you had the virus in memory, and therefore the disk you originally started from was infected.

To get rid of the virus from a disk, start off with a clean (non-virus) standard disk; you can check this by performing a left-mouse-button boot as described above. Now put the infected disk in drive 1 (say), enter the Amiga CLI (Command Language Interface) and type INSTALL DF1:

This will restore the standard boot-track, hence killing the virus. To prevent re-infection by the SCA (or any other) virus, you should now write-protect the disk by sliding the plastic tag. That's it — virus exterminated.

(Note that this procedure is for standard disks — it is NOT guaranteed safe for "key" disks, copy-protected games, etc. However, if a copy-protected game disk is KNOWN to have the virus, you can TRY this procedure — it will certainly get rid of the virus, but won't get the game working again if the virus has upset its protection scheme — you will need to obtain another copy.)

More about Viruses

The above account pretty well completes the story of the Amiga SCA virus. It should perhaps be added that it is at least strongly rumoured that certain cretins, who would not have been capable of thinking up the SCA original, have nevertheless thought it clever to "mutate" the virus by producing new

continued on page 78

AMIGA PROGRAMMING:

A Simple Approach to Resource Handling

This month Paul Andreas Overaa suggests a useful approach for tidying up resource allocation and deallocation on the Amiga.

In my last article I mentioned that difficulties can occur if you are careless with the way you handle resource allocation on the Amiga. Specifically the problem is this: Facilities such as opening libraries, screens, windows, getting memory space for buffers etc., require that YOUR PROGRAM keeps track of what it is asking for, that it checks to see that these resources are actually obtained and that the resources being utilized are handed back properly when the program terminates. This latter requirement, in many cases, means handing back the resources in the reverse order.

Here is a simple example: If you open the Intuition library, set up a custom screen and finally open a window then when your program finishes it must firstly close the window, then close the screen, and lastly close the Intuition library. If you use a different order your program will most likely as not CRASH. As your programs grow in size so will the number of resources being handled. To keep the system happy your approach to 'resource hand back' must be sufficiently robust to allow not only for normal exit but for all error conditions as well.

This month I discuss an approach that is simple, effective and easy to implement in practice. Firstly we separate the sections of code that deal with particular resource allocations into a 'switch' statement with each case identified by a 'function number'. We also define a similar switch statement that provides the corresponding deallocation code.

At the start of our program we define these function numbers and also define a resource vector that contains a list of the resources that we wish to use. To allocate our resources we use a loop to read through this vector and pass each function number to a routine that performs the right piece of code. If an error occurs we use a deallocation routine that reads the list backwards and passes each function number to a routine that then performs the corresponding deallocation code.

The benefits of this approach are that the principles are straightforward, that you can add additional allocate/-deallocate resource code in any order as your program grows — knowing that your error handling will remain safe. A certain amount of dynamic flexibility is also obtained since it i quite an easy job to add routines to open resources at any time during program execution and add the corresponding function number to the resource vector list.

It is reasonable to suggest that a possible disadvantage in the code presented is that system variables used in the various switch code sections are defined as global. There is, however, some justification for this approach since pointers, such as those to screen or window structures returned by system calls and other variables the system sets up during resource allocation, often need to be referenced by many different routines within a program. By defining as global a small set of variables relating to the resource allocation code we are able to avoid some rather uncomfortable parameter passing problems.

Here is some example code to finish with: Figure 1 is part of a header file that shows how I've defined the function numbers and how I initialize a resource vector. This latter item is simply a count of the numberof function numbers in my resource vector list followed by the list itself. Also shown are the variables that I am defining as global in the allocation and deallocation routines.

Figure 2 shows the routines that do the work. Here are some brief notes describing each routine:

begin_block ()..... is essentially a loop that reads the resource vector list. Each function number found is passed to allocate_resource (). If at any time allocate_resource () says an error has occured (which it does by returning an error_flag=TRUE assignment) then begin_block () automatically deallocates all resources previously allocated.

end_block () is a loop to read the complete list backwards passing each function number to the routine called deallocate_resource ().

allocate_resource ()..... is a giant 'switch' statement whose case definitions are our previously defined 'function numbers' together with the corresponding allocation code.

deallocate_resource ()..... is complementary to the above routine. It contains case definitions whose function numbers contain the corresponding deallocation code.

As far as the individual code segments themselves go they may, or may not, be of particular interest to you. The important thing is the overall approach

I: Keep the system calls isolated as individual cases of a switch statement.

II: Allocate resources by reading a list defining the order in which the individual pieces of code should be performed. If problems occur deallocate by reading the list backwards from the point where the problem occurred.

III: For normal program exit deallocate by simply reading the whole list backwards.

I have used this approach on several recent programs and to-date it has, providing it is used with care, proved surprisingly effective.

Figure one.

```
/* ============================================================== */
/* Title:           Resource_Allocator() version 0.0 header       */
/* Disk Ref:        Resource_Allocator[v0.0].h                    */
/* Date:            1st October 1987                              */
/* Programmer:      Paul Andreas Overaa                           */

/* ++++++++++++++++ AMIGA RESOURCE "FUNCTION NUMBERS" ++++++++++++++++++++ */
/*                                                                */
/* These are function numbers that I have chosen to represent commonly     */
/* used sections of code allocating required system resources.             */
/* The resource_vector()  consists of a count followed by a list of the    */
/* function numbers in the order that you wish to allocate them.           */
/*                                                                */
/* In use the arrangement is simple.  I set up the vector to say  'give me */
/* these resources in order specified'. Short routines are then used to    */
/* read through the list performing the operations required.  If a problem */
/* occurs a  'deallocation'  routine simply reads the list  backwards from */
/* the operation IMMEDIATELY BEFORE the one that failed. This ensures that */
/* we deallocate the right resources in the right order.                   */
/*                                                                */

/* ++++++++++ GLOBAL VARIABLES REQUIRED FOR RESOURCE ALLOCATION ++++++++++ */

/* It is your responsibility to set this block up. If you wish to modify  */
/* the resource list dynamically you must ensure that resource_vector()    */
/* is dimensioned to an appropriate value.                                 */

fdefine  OPEN_INTUITION_LIBRARY  1
fdefine  OPEN_GRAPHICS_LIBRARY   2
fdefine  BUFFER_ALLOCATION       3
fdefine  RASTER_ALLOCATION       4
fdefine  OPEN_CUSTOM_SCREEN      5

LONG  resource_vector[6] = {5,     /* count of operation labels to follow */
                            OPEN_INTUITION_LIBRARY,
                            OPEN_GRAPHICS_LIBRARY,
                            BUFFER_ALLOCATION,
                            RASTER_ALLOCATION,
                            OPEN_CUSTOM_SCREEN
                           };


struct  IntuitionBase   *IntuitionBase;
struct  GfxBase         *GfxBase;
struct  Screen          *screen;
struct  Remember        *RememberKey;


BYTE    *Planes_copy[6]; /* duplicate of BitMap.Plane[] pointers        */
LONG    buffer_p;        /* pointer receives start address of my buffer */


/* ============================================================== */
```

Figure two.

```
/* ============================================================== */
/* Title:           Resource_Allocator() version 0.0              */
/* Disk Ref:        Resource_Allocator[v0.0]                      */
/* Date:            1st October 1987                              */
/* Programmer:      Paul Andreas Overaa                           */
/* -------------------------------------------------------------- */
/* This set of  routines is used to handle allocation and deallocation of  */
/* Amiga resources during startup, error condition exit and the normal     */
/* program termination. The routines are NOT transparent but they do ease  */
/* the overall problems and give a consistent framework in which to work.  */
/* More sophisticated management routines may well be worth developing     */
/* once we have a clear idea of the specific practical limitations of      */
/* this particular approach.                                               */

/* -------------------------------------------------------------- */

/* The routine begin_block() is used at the start of a program to perform  */
/* resource allocation as defined by the list held in  resource_vector().  */
/* If during the control loop an error is found ALL previously allocated   */
/* resources are deallocated before the routine returns to the calling     */
/* program with an error_flag=TRUE condition.                              */

BOOL begin_block()

{

LONG i,j; BOOL allocate_resource(),error_flag=FALSE;void deallocate_resource();

for (i=1;i<=resource_vector[0];i++)

      { error_flag=allocate_resource(resource_vector[i]);

        if (error_flag==TRUE)

           { printf("%s %d \n","error during allocation at level ",i);

             for (j=i-1;j>0;j--){deallocate_resource(resource_vector[j]);}

             i=resource_vector[0]+1; /* force exit from 'i' loop */

           }

      }

return(error_flag);

}

/* -------------------------------------------------------------- */
/* The routine  end_block()  is used to read the  resource_vector() list   */
/* backwards so that deallocation of resources occurs in the reverse order */
/* to that used during allocation.....it's simple but effective !!         */

void end_block()

{

LONG ii;

for(i=resource_vector[0];i>0;i--){deallocate_resource(resource_vector[i]);}

}

/* -------------------------------------------------------------- */
/* Given a 'function number' this routine performs the corresponding piece */
/* of code. Sorry about the global variables needed in the code segments   */
/* but if you play around with the alternatives you'll begin to see why !! */
/* Remember that the case statements will GROW as your program grows and   */
/* new types of parameters may become involved at any time !!              */


BOOL allocate_resource(function_number)

LONG function_number;

{

LONG i,j; BOOL error_flag=FALSE;

switch (function_number) {

        case OPEN_INTUITION_LIBRARY:

                if((IntuitionBase=(struct IntuitionBase *)
                OpenLibrary("intuition.library",INTUITION_VERSION))==NULL)
                 {error_flag=TRUE;}
                break;


        case OPEN_GRAPHICS_LIBRARY:

                if((GfxBase=(struct GfxBase *)
                OpenLibrary("graphics.library",GRAPHICS_VERSION))==NULL)
                 {error_flag=TRUE;}
                break;


        case BUFFER_ALLOCATION:

                if((buffer_p=AllocRemember(&RememberKey,BUFFERSIZE,MEMF_CHIP))
==NULL)
                   {error_flag=TRUE;}
                break;


        case RASTER_ALLOCATION:

                InitBitMap(&BitMap,5,320,200);

                for (i=0;i<5;i++)
                   {
                    if
((BitMap.Planes[i]=(PLANEPTR)AllocRaster(320,200))==NULL)
```

```
                        {
                        for(j=i-1;j>=0;j--){FreeRaster(BitMap.Planes[j],32
0,200);}
                        i=5;error_flag=TRUE;
                        }

                    else
                        {
                        Planes_copy[i]=(BYTE *)BitMap.Planes[i];
                        }
                    }

                break;


        case OPEN_CUSTOM_SCREEN:

                if((screen=(struct Screen *)OpenScreen(&NewScreen))==NULL)
                 {error_flag=TRUE;}
                break;


        default: printf("allocation failure: unrecognized case \n");
                error_flag=TRUE; break;

                    }

return(error_flag);

}

/* ------------------------------------------------------------------ */
/* The following routine performs the equivalent 'deallocation code'. The */
/* code does not need to be in the same order as the allocate_resource()  */
/* routine although for ease of reading it is probably best if it is.     */
/* Remember... it is YOUR responsibility to get the corresponding code    */
/* for the allocate/deallocate sections right for the things you want     */
/* to do.... these are just example segments for illustration purposes.   */
*/


void deallocate_resource(function_number)

LONG function_number;

{

LONG i;

switch (function_number) {


      case OPEN_INTUITION_LIBRARY: CloseLibrary(IntuitionBase); break;


      case OPEN_GRAPHICS_LIBRARY: CloseLibrary(GfxBase); break;


      case BUFFER_ALLOCATION:     FreeRemember(&RememberKey,TRUE); break;


      case                    RASTER_ALLOCATION:                          for
(i=0;i<5;i++){FreeRaster(BitMap.Planes[i],320,200);}
                              break;
 case OPEN_INTUITION_LIBRARY: CloseLibrary(IntuitionBase); break;


 case OPEN_GRAPHICS_LIBRARY: CloseLibrary(GfxBase); break;


 case BUFFER_ALLOCATION:     FreeRemember(&RememberKey,TRUE); break;


 case                    RASTER_ALLOCATION:                          for
i=0;i<5;i++){FreeRaster(BitMap.Planes[i],320,200);}
                            break;
   case OPEN_CUSTOM_SCREEN:    CloseScreen(screen); break;


    default:                    printf("deallocation  failure:  unrecognized
case \n");
                            break;
```


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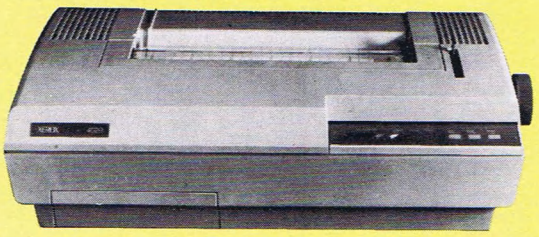
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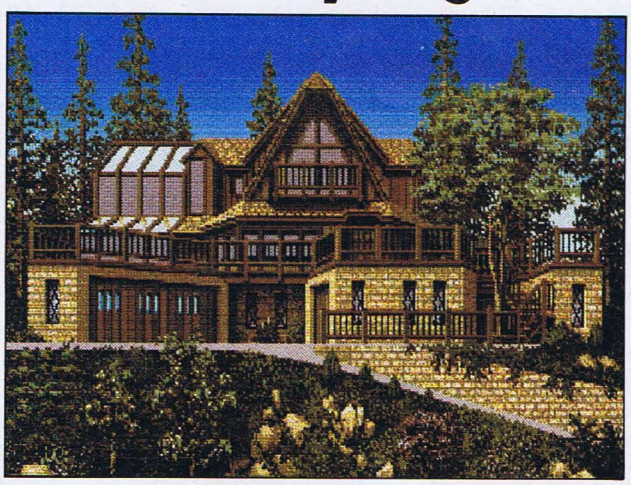


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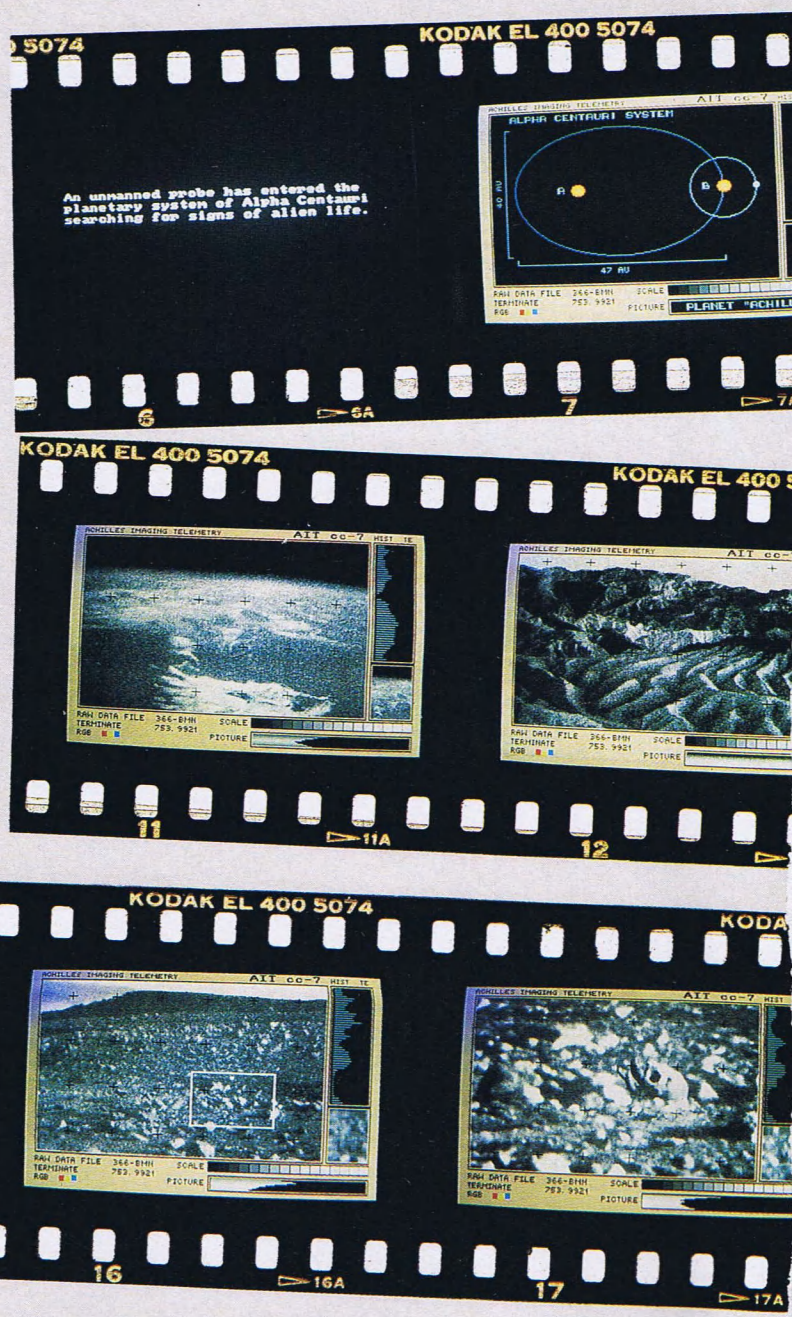
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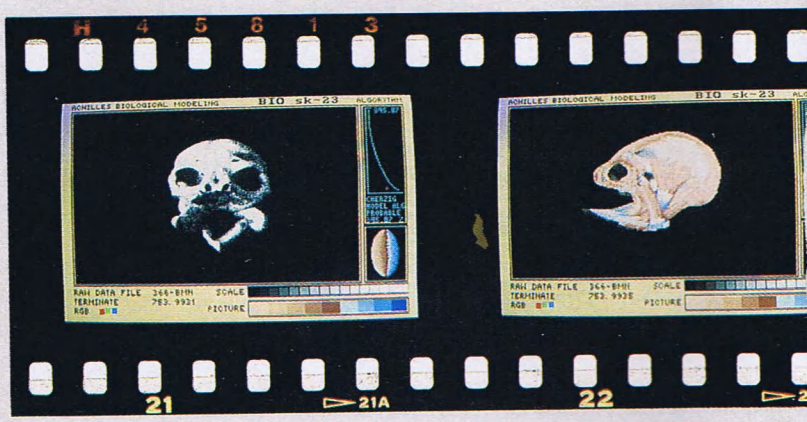
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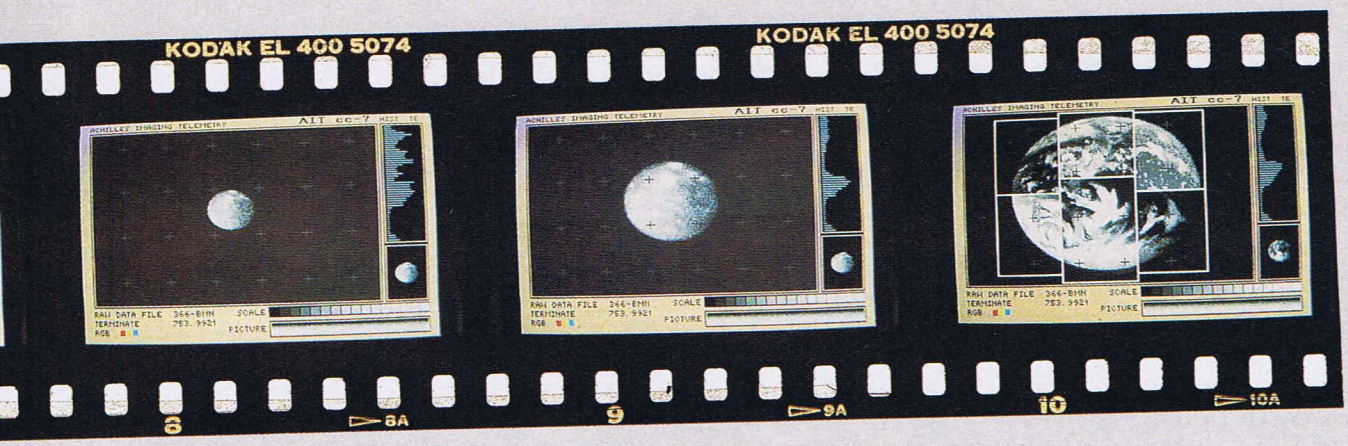
We have received from a scientific source an Amiga disk containing astonishing pictures relayed from a probe which travelled to the Alpha Centauri System. In this case the Amiga's extraordinary graphic capabilities have been exploited to enable a modelling sequence to take place from raw data transmitted back from the probe.

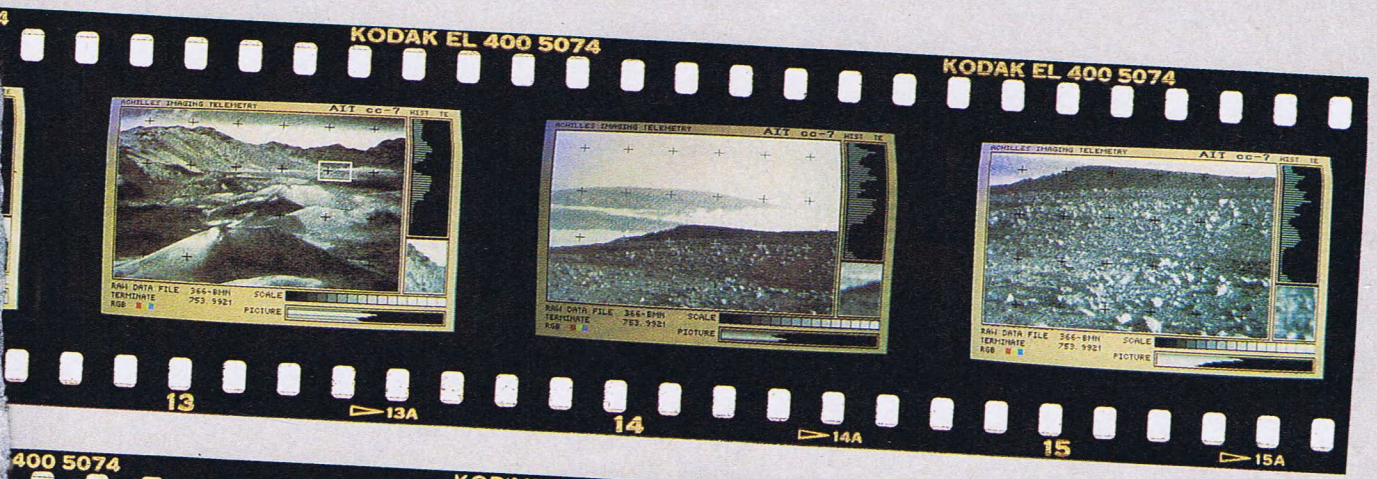
We have chosen to reproduce, in its entirety, the sequence which homes in on a specific area surveyed by the probe. We think you will be, when you examine this sequence of pictures, as astonished as we were to discover what they depict.

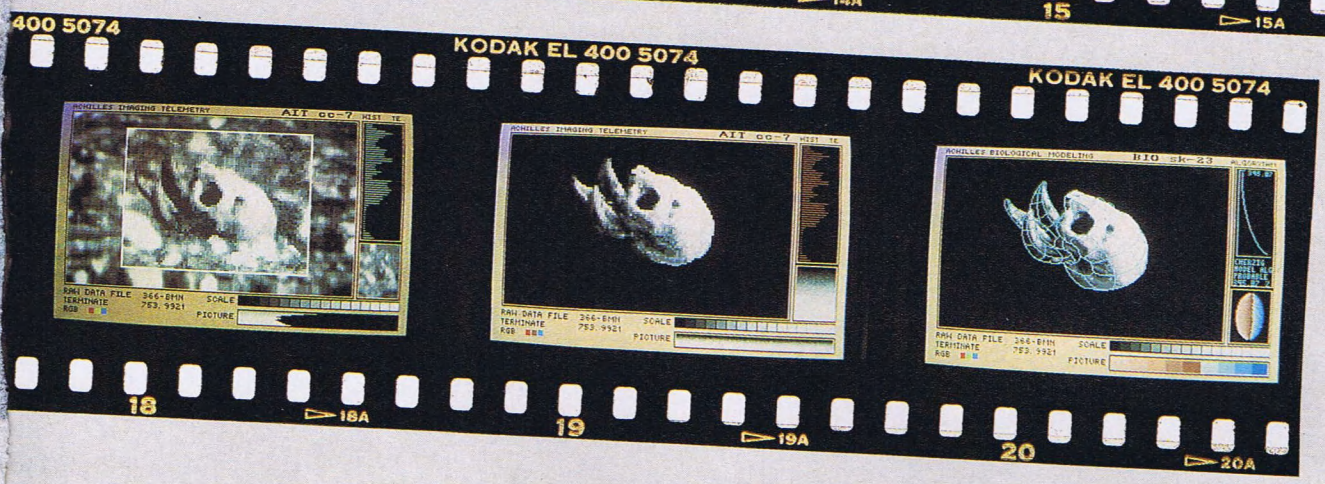
We are indebted to The Right Answers Group for their co-operation which has enabled us to present these pictures to you exclusively.





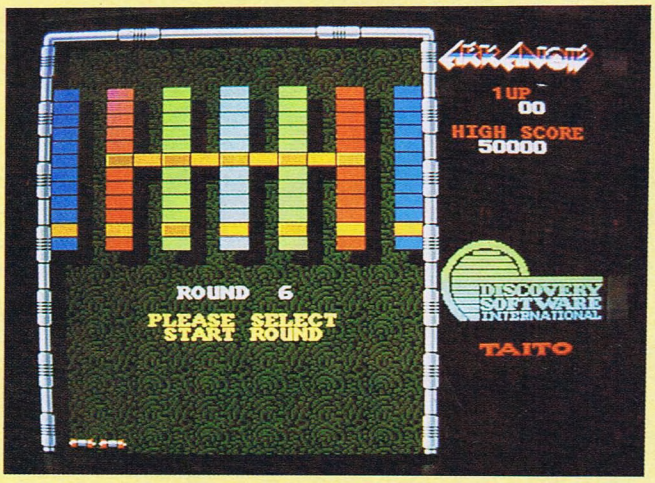

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As a special introductory offer from Amiga User International Magazine you can get Arkanoid for £19.95 – £5 off the recommended retail price – an amazing bargain! As our review says (again!) *"If you want a game that will become an Amiga classic, go and buy this, you won't be disappointed."*

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PD CONMAN

The name may sound a little bit dubious especially in light of 'The Virus' that has appeared on so many users Amiga software (see Feb. AUI). This, however, is a VERY nice PD program and one that is well worth the effort of installing on your main system disks. Amazingly, in this day and age of 1.5 meg plus programs, you may be surprised to discover that it takes up less than 5K of disk space.

So what is Conman? It is a new console handler that offers a lot of advantages over the normal CLI system that comes with the Amiga. When you install Conman one of the first differences you are likely to notice is that you are able to edit the CLI input line. Think how many times you have mistyped a line and had the command fail! You also have several other editing functions, e.g. delete to end of line, insert/overstrike mode, delete line. That's not all . . . one of Conman's most useful functions is a 'command history'. By pressing the up and down cursor arrow keys you can recall the last ten CLI commands you used and then edit and/or re-execute them. Now that is USEFUL! The window specification string has had a few improvements; CON:x20480 will set up a window, the hex numbers following the CON: are the absolute address of an intuition pointer and you may also select any of the standard window gadgets with a /x where x is a character representing a gadget, i.e. C = close gadget.

Installation is very easy. In fact it was so easy that I had installed it the hard way before I found a file that would have done the job for me! There are three files that must be copied to your disk. They are Conman, My-Handler and cohandler-lib.library. You should copy Conman into y our c: directory, My-Handler into the L: directory and conhandlerlib.-library. into the libs: directory. There is only one more thing to do and that is modify your startup sequence to include the command 'Conman' and when you boot up the system Conman will be installed and activated. When you open up a CLI you will wonder how you got by without the extra functions and I have found that it has made life very much easier when using AmigaDos.

Conman was developed and placed into the Public Domain by:
William S. Hawes, P.O. Box 308, Maynard, MA 01754. (617) 587 8695.

You can find the Conman system on FISH disk 69 and IPCUG library disk UTILITIES 3.

ARC

ARC is used to create and maintain file archives. What is an archive? It is simply a group of files collected together into one in such a way that the individual component files may be recovered intact from the Archive file at a later date.

This ARC program is what one would call the "Industry Standard" and is a port of the IBM vesion. It is different from a host of other Archive utilities in that it automatically compresses the files being archived, so that the file takes up a minimum of space.

The ARC program accomplishes this compression through various techniques and the end result is a single file that is never any longer than the combined total of the original files but in most cases obtains savings of around 30-40%.

The Syntax is:

ARC A (filename) — This examines the file and a file with a '.ARC' suffix is created. All files in a program go through the same procedure, all being added to the .ARC file.

ARC X (filename.ARC) — Is used on the Archived file, to extract all the original files.

There are also several other commands. Probably the most interesting is the ARC V command, which will give you a complete listing of the files in the archive, the method of compression used, the original size of the file, the compressed size of the file and the compression expressed as a percentage.

Most BBSs (Bulletin Boards) that offer PD software for the Amiga generally ARC all the programs. It takes up less valuable disk space and, more importantly, it enables a considerable saving in on-line time. You may even find the ARC program itself available for downloading.

One drawback of the program is the length of the filenames used in AmigaDOS. Because ARC is basically a ported IBM program it does not like filenames longer than the 8+3 format of IBM files. If it comes

CONTINUED FROM PAGE 69

across a filename longer than that, it will refuse to ARC the file. This can be a problem as AmigaDOS files quite often have extremely long names.

The answer is to obtain another PD program called ARCRE. This program will rename all the Amiga files to be archived, as ARCHIVE1, ARCHIVE2 etc., so that they can be handled by the ARC programs. There are, therefore, two processes involved in the ARCing of some AmigaDOS programs:

EXECUTE ARCRE then RUN ARC

To restore the original files use — UNARC and then EXECUTE ARCRE

Both programs work well together and I, for one, constantly use them. If you are a Bulletin Board user and don't have them, then they should be at the top of your PD 'must get' list! They are both excellent programs and are examples of the quality products that can be found in the Public Domain.

The ARC program can be found on Fish Disk 70.

WARP

The Amiga WARP factor PD sets it all together for you.

WARP is a Public Domain Disk compactor, which makes use of a number of various compression and squeezing techniques. With it, it is possible to compress a disk containing some 800 Kb of information to around 500 Kb. The result is a single file, suffixed .WRP, which is made up of all the files that were on the disk. You can't "RUN" a .WRP file — it has to be Un-WARPED into its individual files first.

This program is widely used for sending complete programs by Modem, giving similar advantages to those of the ARC system. However, preparation time is greatly reduced using this method as there is no need to organise the sequence and checking of files for compression. Many Bulletin Board SYSOPS (System Operators) use WARP to compact their programs which will then take up much less diskspace and can be downloaded in one section.

Why would you want to WARP a complete disk? Many PD disks contain complete libraries of DEMOs, Printer Fonts, Music files and so on. A WARPed disk can be sent as a single file, thus requiring less intervention and valuable time to send to a distant user.

The SYNTAX is:

WARP READ 0 79 (filename) — this will automatically read and compact tracks 0 to 79 and produce a single .WRP file.

WARP WRITE (filename) — will Un-WARP the .WRP file, accurately producing all the files of the original disk.

Another excellent Utility and, once more, you may be able to get the WARP program itself from one of the AMIGA Bulletin Boards.

The WARP program can be found on Fish Disk.

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AMIGA ANSWERS

Got a problem? Write for an Amiga Answer!

Dear AUI,
I, like many other people, have dreamt of owning an Amiga. It is only recently that my dream has become a near reality but I need a few answers about this awesome machine. So here I go . . .
(1) Should I wait? I hear Commodore are planning to release an equivalent of the A500 with 1Mb. Will it cost more?
(2) How much software is being released monthly for the Amiga? Is it increasing? Are U.S. Gold likely to release Gauntlett II or Outrun on the Amiga? (I have heard rumours.)
(3) How many Amigas have actually been sold in the U.K. Is it beating Atari yet?
(4) Is the Amiga going to take off?
I hope you print this letter and I will be eternally grateful if you answer as many of these questions as you can. From a 15 year old. Your mag and Jeff Minter are both brill!
Yours hopefully,
Darren Voisey

Darren Voisey
(1) Commodore already offer the A501 RAM expansion module for the A500. The A501 contains 512K RAM and a battery-backed clock/calendar. It mounts internally within the A500. It costs £113.85.

It is always possible that the marketing department in one of Commodore's many national subsidiaries around the world may decide to bundle the A501 with the A500, but I would not advise anyone to wait for it to happen.

Commodore's marketing policies varied from country to country with the original A1000. In the USA it was sold as a 256K machine, with the extra internal 256K RAM module as an optional extra: in the UK it was only sold as a 512K machine, with the extra 256K installed as standard.
(2) Although the Amiga will never have a much software as the C64, its software base is growing at a reasonable rate.

A selection of the most interesting new software released for the Amiga each month is reviewed in this magazine.

U.S. Gold plan to release an Amiga version of the original "Gauntlet" this Summer. They expect eventually to have Amiga versions of "Gauntlet II" and "Outrun", but no release dates are yet scheduled.
(3) Neither Commodore or Atari announce their sales figures, both treating this as very confidential information.

However, taking the three major markets for the Amiga and the ST, it is generally accepted within the trade that the Amiga has been far more successful in the USA (where it is difficult even to find any STs in retail outlets, which is why Atari bought the Federated Group of 63 electronics stores in California and Texas last Autumn); the Amiga and the ST are running neck-to-neck in Germany; and, since former CBM (U.K.) boss Bob Gleadow took over Atari Corp (U.K.), the ST has outsold the Amiga in the U.K. because of a much keener pricing policy.
(4) Thanks to good Christmas quarter sales of the A500 around the world, the Amiga has undoubtedly already taken off.

Dear AUI,
On re-reading the Amiga Letters article in the August issue entitled "Help is at hand", I rushed eagerly to my computer. I also have been unable to get anything other than the Workbench directory with the DIR command. However, your solution does not work for me! Firstly you need a space between D.I.R. and ?. Secondly inserting the required disk, whose directory is needed, on obtaining the prompt DIR,OPR/K: only causes the request "Please replace volume A500 WB 1.2" to appear, and Eh Voila! one is promptly rewarded by . . . you've guessed it, the W.B. directory.

Is there a prize from Commodore for the most ingenious way of obtaining the W.B. directory, or perhaps its for finding the most number of ways.

Once again HEEELP — how on earth does one get the directory of disks other than Workbench?
Yours sincerely,
Keith L. Richards

Keith L. Richards
The answer given in August was correct, but presumed you had gone directly into the CLI rather than arriving there via the Workbench. (Pressing CTRL D as soon as the screen goes blue aborts the loading of Workbench and puts your directly into the CLI.)

Unlike MS-DOS, which only knows about the disk(s) that are currently in the drive(s) of a PC, AmigaDOS is capable of retaining information about a disk after it has been physically removed from the drive.

Opening a CLI from the Workbench causes the system software to log the Workbench disk as being in active use.

AmigaDOS continues to treat the currently logged active directory as the current directory even after a disk has been removed from the drive and replaced by another disk, unless it is specifically instructed to do otherwise.

If, after switching on the Amiga and loading WORKBENCH, you open the Workbench by double-clicking on its icon, the root directory of the Workbench disk becomes the current directory.

When working with a CLI loaded from the Workbench you must use the Change Directory command (CD) not only to change the current directory to a subdirectory on the same disk, but also to change to the root directory (or a subdirectory) on another disk after changing the disk in the drive.

So, to get a directory of another disk, with the Workbench disk still in the drive, enter

CD ?

After the DIR: prompt appears, put the new disk in the drive, and make its root directory the current directory by entering

DFO:

Then put the Workbench disk back in the drive, and load the transient DIR command from it by entering

DIR ?

The Amiga is a multi-tasking machine. Because of this you will notice that prompts often come up on screen before disk accessing is finished. Do not remove a disk until after the red drive led goes out.

The amount of disk swapping needed for a simple operation like this is a clear illustration of why it is always recommended that serious use of an Amiga requires either dual drives or expansion memory for a RAM disk.

Dear AUI,
I am the owner of an Amiga 500 and woul dlike to know the following with regard to the "Amiga Virus Programme".

I know the Virus is written to the boot sector (?) of the disk, but if I load WB 1.2 (with an uninfected disk), go to CLI, then inspect the suspected disk (write protected!!) by inserting into DF1: by typing LIST DF1: will the "Virus" programme be listed along with the others or how do I list the "boot" sector?

I was also thinking, as the Amiga has the facility to list all text on the disk (i.e. in CLI mode, the command TYPE DF1: (Filename) OPT H will list the disk sectors and also list any ASCII characters on the right of the disk info) would the TYPE mode reveal the virus message and I would then know if any of my disks are infected especially the P.D. ones?

I enclose an S.A.E. for your reply.

Thank you for your kind attention.
Yours faithfully,
A. Roddis
P.S. I take it the "Virus" will only write to non-write protected disks?
P.P.S. Keep up the good work on the CCI! (and the Amiga cover is great). Thanks.

A. Roddis
The Amiga VIRUS is simply a modification of the BOOT BLOCK of an existing AmigaDOS boot disk. Any disk that can be used to boot the Amiga (i.e. Workbench) has a reserved area called the boot block. On an Amiga floppy the boot block consists of the first two sectors on the disk. Each sector is 512 bytes long so the boot block contains 1024 bytes. When Kickstart is bringing up the

system the disk in drive 0 is checked to see if it is a valid AmigaDOS boot disk. If the first two sectors on the disk are empty, it is not. If it is, the first two sectors on the disk are loaded into memory and executed. The boot block normally contains a bit of code that loads and initialises AmigaDOS. If not for this BOOT CODE you would never see the initial CLI. The normal boot code is very small and does nothing but call the DOS initialisation. Therefore on a normal DOS boot disk there is plenty of room left unused in the boot block. Some software protection schemes use this empty space in the boot block, and it is only to such disks that the Virus is a real danger.

The boot block is not an ordinary file, so does not appear in the directory and cannot be examined with the TYPE command — but only with a disk editor. See the article by Harry Broomhall and David Parkinson elsewhere in this issue for instructions on a simple method of checking for and removing the Virus without a disk editor.

The Virus is a replacement for the normal DOS boot code. In addition to performing the normal DOS startup the Virus contains code for infecting other disks and for displaying the Virus message. Once the machine is booted from a infected disk the Virus remains in memory even after a warm start. Once the Virus is memory resident the warm start routine is affected: instead of going through the normal startup (when the three keys CTRL, Commodore and Amiga are pressed together) the Virus checks the boot disk on drive 0 for itself. If the Virus in memory sees that the boot block is not infected it copies itself into the boot block, overwriting any code that was there before.

It is in this manner that the Virus propagates from one disk to another. After a certain number of disks have been infected the Virus will display a message telling you that 'Something wonderful has happened'.

When the Amiga is booted from an infected disk the machine is brought up normally by reading the boot block into memory. When control is transferred to the boot block code, the Virus code immediately copies the entire boot block to $7EC00 and then JSRs to the copied code to wedge into the CoolCapture vector. Once wedged in, control returns to the loaded boot block which performs the normal DOS initialisation. Control is then returned to the system.

At this point the system CoolCapture vector has been replaced and points to code within the Virus. When control is routed through the CoolCapture vector the Virus replaces the DoIO left mouse button: if it is down the Virus replaces the DoIO code with its own version of DoIo and returns to the system.

The code so far has only been concerned with making sure that at any given time the DoIO vector points to the Virus code. This is where the real action takes place. On every call to DoIO the Virus checks the io-Length field of the IOB: if this length is equal to 1024 bytes then it could possibly be a request to read the boot block. If the io-Data field and A4 point to the same address then it is a boot block read request. If it is not a boot block read the normal DoIO is executed as if the Virus was not installed. However, if it is a boot block read, control JSRs to the old DoIO code to load the boot block into memory and then returns to the Virus. The checksum for the Virus boot block is compared with the checksum for the block just read in.

If they are not equal a counter is incremented and the copy of the Virus at $7EC00 is written to the boot block on the disk. This copy includes the incremented counter. If the counter ANDed with $F is equal to 0 then a rastport and bitmap are constructed and the Virus message is displayed. Thus the message is displayed whenever the number of infected disks is a multiple of 16.

You are correct in presuming that the Virus can only copy itself onto non-write protected disks.

As explained in Harry Broomhill and David Parkinson's article, you can remove the Virus from infected disks just by using the INSTALL command from the CLI and without needing a special program. In fact, I strongly advise Amiga users to avoid such programs — since there are strong suspicions that at least one of them actually serves to introduce a new form of the Virus.

Thanks to Bill Koester at Commodore Amiga Technical Support in West Chester for information on how the Virus operates.

Dear AUI

I was interested to learn about the 64 Emulator for the Amiga. How is the program loaded in - from a special tape interface (the Amiga does not have a cassette player!) or from a 5¼" disk (needing a 5¼" drive to be bought)?

Congratulations on producing such an informative magazine. Keep it up.

Yours faithfully,

Mr. F. Poudano

F. Poudano

There are two 64 Emulators for the Amiga on sale in North America. The better one of them was reviewed in last month's Amiga User (February, page 26). It was written in Canada and is sold by Ready Soft in the USA (PO box 1222, Lewisham, NY14092 — $39.95 or, with cable for the C64 peripherals, $59.95).

It is written in 68000 Assembler, and takes over the Amiga entirely (so multitasking is not possible with it loaded). It is supplied on a standard Amiga 3.5in disk. The package optionally includes a special cable for connecting a Commodore serial disk drive (1541, 1570, 1571 or 1581) and/or a Commodore serial printer to the Amiga's RS232C (serial) port.

The cable needed for the A1000 is different to that for the A500 and A2000 because of the change that was made in the Amiga serial port. When ordering, specify which version you require.

Once the software is loaded (from the Amiga's own drive), you can configure your drives: say, have the Commodore serial drive as device 8 and the Amiga's df0: a device 9. (The software will not read 1581 format 3.5in disks in an Amiga drive.)

Because most 64s in North America are used with disk drives, no provision has been made for attaching a 1530 cassette unit to the Amiga.

Because Amiga sprites are narrower than 64 sprites, the Emulator has to use pairs of Amiga sprites for each 64 sprite. The overhead that this imposes rendes arcade style games so much slower than on the 64 as to be not worth playing. However, 64 productivity programs (word processors, databases, spreadsheets) work fine with it as they do not use sprites.

Anyone whose prime requirement is just to transfer data files from a C64 or C128 to the Amiga, an who has either the external A1020 5.25in drive (never sold by Commodore in the U.K) or an A2000 with an internal 5.25in drive, should also consider Central Coast Software's "Disk 2 Disk" ($49.95).

Quote of the month

If you cross an Atari with a Tandon what do you get?

An unreliable computer that isn't available but does give press conferences and do card tricks

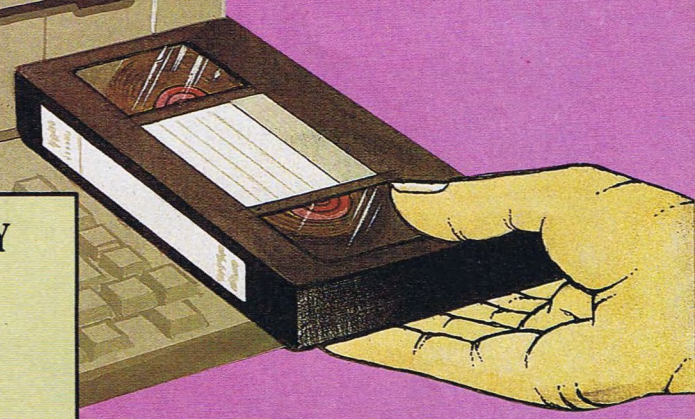
Jerry MacDougal
MicroScope

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DARK CASTLE

Mirrorsoft

When Manic Miner started off the platform game craze, almost anything involving jumping, platforms and patrolling nasties was instantly successful. I remember a time when I just couldn't get enough of them, but times may have changed, and other game-styles have taken over. Mirrorsoft have just released Dark Castle, a platform game that owes a lot to Donkey Kong, Barbarian (Psygnosis) and a good few others, but is none the worse for that.

The setting is a fantasy world of castles, ogres and scorcery. You have been given the job of getting rid of the Black Knight, who is no doubt a baddie through and through. He hangs out in Dark Castle, situated atop a large hill. This is no ordinary castle, but is riddled with platforms suspended in mid-air and trap doors to capture unwary visitors. You might guess from its name that a multitude of spooky creatures haunt the chambers. Bats, rats, tin men, whip-cracking slave drivers and more, all pose a threat to outsiders.

You have control of a spritely chap with a large handful of rocks for ammo. With him you can run, jump, duck, climb and lob rocks. If you're lucky you could find a more powerful weapon to use against the enemies. Because of the amount of actions you can perform, the mouse is used as well as the joystick or keyboard. This leads to a bit of confusion when monsters are closing in from all sides, but can be mastered with practice.

An excellently atmospheric picture of the castle in a storm accompanied by a snatch of pipe organ music, starts the game well. Unfortunately, the rest of the graphics are not quite up to this standard, but there's not as much scope considering their size. The bats and rats for instance, are very basic, but the main character has some amusing animation.

"The grunts and screeches liven the game up terrifically"

You can't help noticing the excellent sound effects during the game, which are easily the best part of it. The grunts and screeches liven the game up terrifically, and for once they are sound effects that don't get boring.

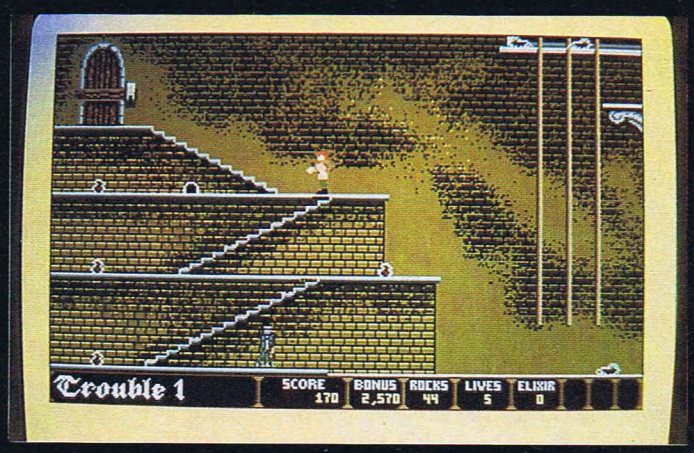
Platform games can be great fun, partly due to the fact that most have a load of different screens to get to. To a degree, this is the case with Dark Castle, but it's slightly let down by the fiddly controls. It can be very annoying when you fall over for no apparent reason, or when our hero refuses to go down some stairs. Another niggle is that it's too easy to climb up some stairs or a ladder and jump off the platform when he gets to the top.

If you can bear these problems, you could be in for a tremendous amount of fun. It can be frustrating partly because of the long disk accesses between games and levels. For anyone with a single drive system, the disk swapping could be a pain. All in all though, Dark Castle's good points far outweight its bad ones.

I have to warn you that Dark Castle is really difficult but most players will find it a furious challenge that will draw you back again and again to defeat the bats, the rats, the man with the whip and all the other nasties who just keep on coming at you.

B.V.



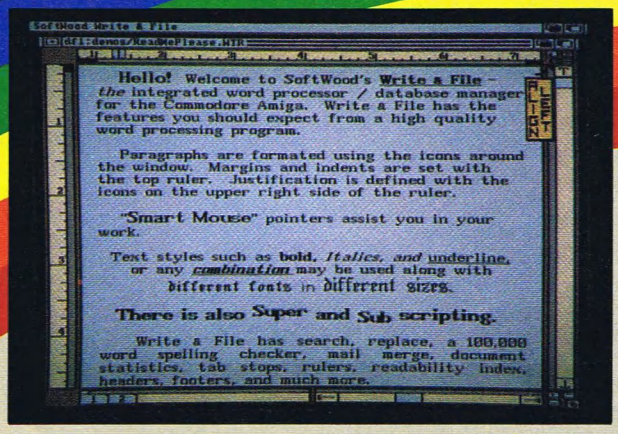


Graphics: 6
Sound: 9
Playability: 7
Value: 7
Price: £24.99

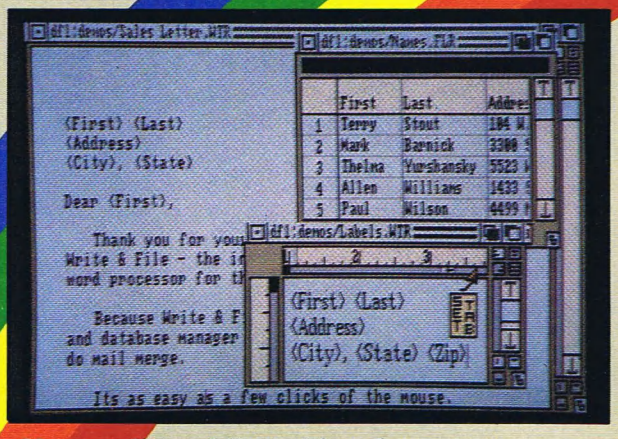
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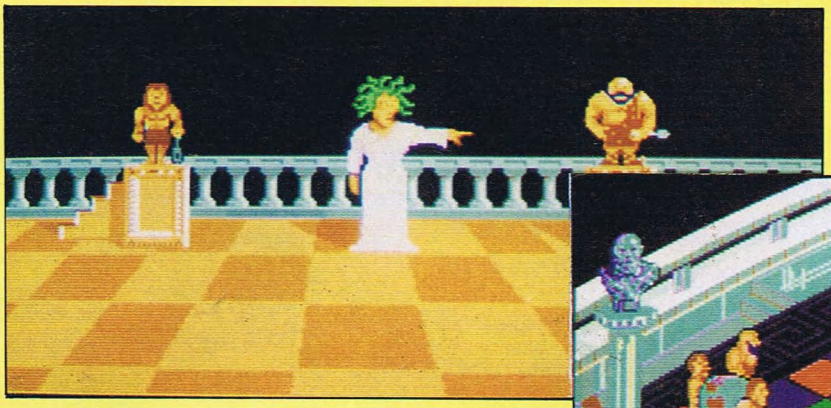
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POWERPLAY

Arcana





Arcana, who enjoyed success with the 8-bit version of Powerplay have announced that they're now going to concentrate on 16-bit software. Their first two Amiga games are Mars Cops and Powerplay. Mars Cops is a sci-fi action game set on Mars, where you've been given the job of putting a stop to a gang of aggressive aliens.

Powerplay takes a new look at the trivia quiz game by replacing counters and wedges for gods and monsters. Each player can take the part of one of four gods: Apollo, Hermes, Hecate and Aphrodite. Each god has a team of four mythological characters, to fight the battles for them, ranged to play in a courtyard marked out with a grid. The teams start at opposite corners of the grid. Each square is coloured according to the subject it represents. Pieces are moved around the board by answering questions on the subject of the chosen square. One of four suggested answers has to be selected within the time limit to make the move.

Opponent's pieces are removed by moving on the same square, when a challenge will commence. These challenges take place in one of a number of locations. For example, one is set with the pieces either side of a bubbling lava pit. A tug 'o' war sorts out the winner. This is also played by answering questions, which pulls the rope, pushes a rock or whatever in your favour. If the losing piece is weak, it will be eliminated from the game. If it has mutated to a stronger level during the game, it mutates back to its former power.

In addition to the two thousand questions supplied with the game, there is also a question compiler that lets you create your own questions, although if you have written the questions yourself, wouldn't you know all the answers?

The court is displayed from above and at an angle. The pieces are drawn well, some look decidedly cute, although they could do with a little more detail. The idea of the challenges is good, and works well, but again, the backgrounds would benefit from additional detail.

"If you've a friend handy, the chance of pulling him into a pit of lava, or squashing him under a boulder will prove to be a highly enjoyable experience!"

Trivia games are always a good way of showing off your general knowledge (or getting embarassed at your lack of it), and Powerplay has added some interesting and amusing twists. Playing against another player also adds to the competitive spirit. For someone who would normally play alone, Powerplay maybe isn't exactly your thing, but if you've a friend handy, the chance of pulling him into a pit of lava, or squashing him under a boulder will prove to be a highly enjoyable experience! If you lack a good quiz/board game, Powerplay will make a great addition to your collection.

B.V.

Graphics: 7
Sound: 7
Playability: 8
Value: 7
Price: £19.95

COMMUNICATIONS

The world of communications is growing fast but it is surrounded by a host of jargon and mystique that makes the subject incomprehensible to most people. In this series we will try to explain the terms, and the techniques used to make computers and terminals talk to each other. We will also cover some of the more common pieces of equipment that are in use, and you should be able to see some of the many possibilities that the world of communications offers.

Communication Basics

Before the days of the home/personal computer the electronic transfer of data was restricted to the mini and mainframe type of machine. It was also common to stick to the same make of machine, the maintenance of which was left to the manufacturers service departments. In this case the problems of getting the data between one machine and the other were greatly simplified. As most machines of the same make normally use a similar operating system the transfer could normally be done very easily. The real problems occurred when remote access to these machines was required. In order to ease this problem several standards have been defined, none of which make for easy reading! The most common 'standard' is the RS232. Unfortunately you have to take the word standard with a pinch of salt, this is because the RS232 standard is very comprehensive and offers several options. So the fact that two machines use the RS232 standard does not mean that they talk to each other just by plugging them together.

By some fluke it was decided that the RS232 and the CCITT V24 'standards' should conform to each other, this has made it possible for both European and American machines to communicate with each other. Fig. 1 shows a table of the RS232 and V24 signals and the pin number of the 25-way 'D' connector that is assigned to it.

The importance of Fig. 1 will become all too clear a little later, but it is necessary to introduce it as soon as possible. Most of the jargon that surrounds data communications comes from this standard. From now on I will be using the abbreviations listed in Fig. 1 except where it will confuse the issue!

Pin	Amiga	RS232
1	GND	GND
2	TXD	TXD
3	RXD	RXD
4	RTS	RTS
5	CTS	CTS
6	DSR	DSR
7	GND	GND
8	CD	CD
9		
10		
11		
12		S.SD
13		S.CTS
14	-5V	S.TXD
15	AUDO	TXC
16	AUDI	S.RXD
17	EB	RXC
18	INT2*	
19		S.RTS
20	DTR	DTR
21	+5V	SQD
22		RI
23	+12V	SS
24	C2*	TXC1
25	RESB*	

FIGURE 1

Consider how two people talk to each other, what things must be true to enable a conversation to take place? Well they must be able to hear each other, they must speak the same language, they must not both speak at once. This broadly corresponds to what a data comms system has to do in order to establish communications. In order to 'see' each other the equipment must be connected together, the RS232 interface and a suitable lead will do that. The language or data format must be the same, ie ASCII, EBDIC or any of the many codes used by computers. To prevent both machines talking at once FLOW CONTROL is employed. This is the most troublesome part of communications, and often causes the biggest headaches. RTS, CTS, DTR, and DSR can all be used for flow control. There is one other problem area in data comms and that is TIMING the interface pins TC, RC, are used for this and they will be dealt with a little later in the series.

How Data is Transmitted

The fundamental fact to remember is that RS232 data is sent in a SERIAL format. Another thing is that the data is not sent byte by byte but is sent bit by bit. Now this presents a problem, how do we send data in this fashion?, well lucky for us there are a number of ways that have been about for many years. Most home computers have the means to do this in the form of a UART. This an acronym for Universal Asynchronous Receiver Transmitter and normally takes the form of a chip. It is possible to simulate a UART with software, in fact the C64 does this. The Amiga has its UART built into the Paula chip.

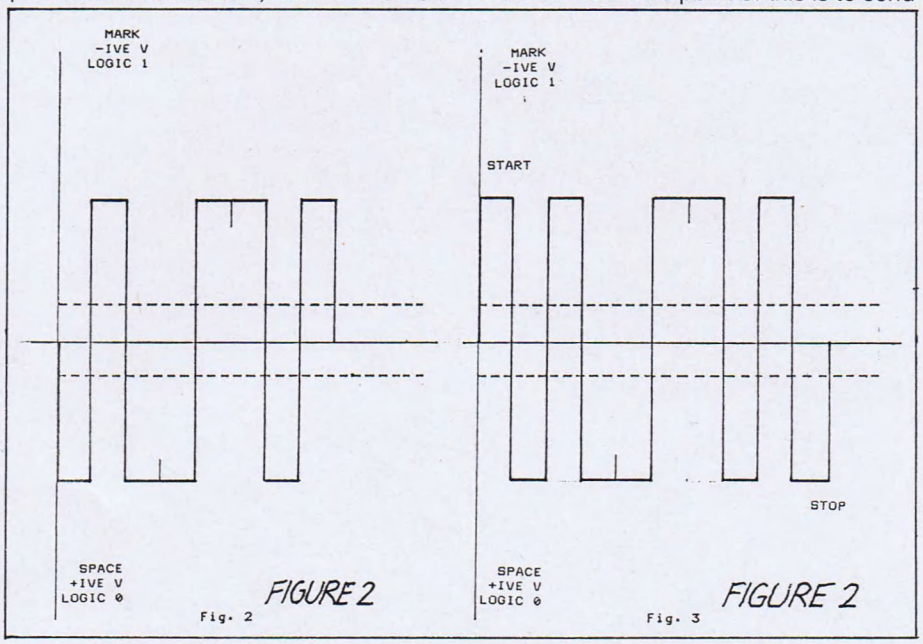
To use this system all that has to be done is to open the channel to the serial device and any data will be sent to this device in a bitwise serial form. This data comes out of the connector on the back of the Amiga as electrical voltage levels. The RS232 spec is very generous in stating that the signal can swing from +3 to +30 volts and from −3 to −30 volts. It is more common to use +3 to +12 and −3 to −12 volts. The voltage range +3 to −3 volts is a safety feature so that any 'noise' ie a slight ripple on the input will not cause false readings. Just to make matters a bit more complex people often talk about 1's and 0's and MARK and SPACE. Well MARK is the same as a logic 1 and SPACE is the same as logic 0, and MARK is the negative voltage and SPACE is the positive voltage.

CONTINUED OVER PAGE

The stream of bits is sent to the interface one by one and thus a series of voltage levels will appear on the TD pin of the interface. As each byte has eight bits, there will be a combination of eight mark or space signals sent out. Depending on the bit pattern, however it does not mean that each level must change to the opposite state every time. If we take an example such as the letter M, this has the Hex value 4D or in binary (bits) 01001101 this would be sent to the TD pin as SPACE, MARK, SPACE, SPACE, MARK, MARK, SPACE, MARK. This is shown graphically in fig. 2. Well that's all there is to it ... or is it??

So far we have only considered the transmission from one end. We must think of this as a two-ended operation, after all the whole point of this is to send data to another system!. How do we know what bit we are going to receive? What happens if we start looking for data in the middle of a transmission? Well all these problems can be solved by two things, the main thing is to agree on the length of time each bit wil be sent at, and to start and end each block of eight bits in a special way. This involves adding extra bits, called the start and stop bits. The start bit is always a SPACE and the stop bit is always a MARK. The length of time that each bit is sent at is the BAUD rate and can be calculated by 1/bit time. So for a bit time of 20mS (.020 seconds) the BAUD rate would be 1/.020=50 BAUD and so on. So we have a system where the receiving machine can wait until a mark bit comes in and then know exactly when each of the next eight bits are going to come in, and to prevent the next character confusing the issue, a SPACE is used to separate the characters. Fig. 3 shows this. Because each character has its own timing and it does not matter when the next character follows, this form of transmission is known as Asynchronous. This is the most widely used form of transmission and is used for such services as the public viewdata service, Bulletin Boards, also VDU's and printers often employ Asynch. interfaces.

Next month Andy Eskelson looks at Flow Control



VIRUS II THE MOVIE

continued from page 61

and more dangerous variations on the original theme. It is also rumoured that there are supposed "antibody" programs in circulation which actually introduce new viruses. This is feeble stuff however compared with the original; Harry's cure, of INSTALLING on a clean system then write protecting the disk, should also serve to kill any SCA mutations, and is a lot safer than relying on "antibody" programs of dubious origin.

This brings us to the more interesting area of viruses in general, and the biological analogy implied by the use of the game "virus". The SCA Amiga virus is fairly classic in this respect; it exists in two main states, a "dormant" state on the boot track of an Amiga Work disk, and an "active" state, actually wedged into the operating software of a working Amiga. In its dormant state it propagates by the normal process of people copying disks; in its active state, it propagates onto other disks brought into contact with it on re-boot; it has enough sense not to produce any symptoms until this process is quite far advanced (16 copies). The infected body (the community of Amiga users) reacts by producing antibodies to the virus, some of which are more dangerous than the virus was in the first place — there are medical parallels to this too. Finally, as the virus spreads around, with the help of certain fools, it mutates.

An obvious question is why this sort of thing hasn't happened on microcomputers before. On mainframes and minis, virus programs are quite old news; a classic example was a virus on the "Cambridge Ring" network which used from time to time to grab control of every output device on the ring and print "I'm the Cambridge Gremlin — I'll bet you can't catch me!" It is however quite a new phenomenon on micros. The answer probably lies in the fact that computer operating software has to pass a certain level of complexity before it becomes vulnerable to attack by a virus. The Amiga runs a multi-tasking "operating environment" a great deal more sophisticated than anything available on the PCs which came before it. This is responsible for a lot of the attraction of the Amiga; it also renders it vulnerable to a virus.

A final point concerns the way that the SCA virus travelled from Switzerland where it was developed, to infect the rest of the Amiga world, this process bares a resemblance to the spread of a great deal more serious and alarming human virus called HIV. In order for one disk to infect another, they need to get into the same computer together in circumstances where they are not write-protected; the analogy for write-protection here is pretty obvious. It seems very likely that the spread of SCA from Switzerland was helped by some very promiscuous software concerned with making copies of other programs, for software piracy or "hacking". In this context, the SCA virus was known about many months ago; however its spread was further helped by an attitude which held that SCA was something which happened to nasty horrible hackers, and not to ordinary decent Amiga users like us. It is these same "ordinary" users who have recently been finding that something like 70% of their disk's are infected.

A good thing then, that the SCA virus on the Amiga can be cured so easily.

Harry Broomhall,
David Parkinson

Harry Broomhall is a freelance software engineer and consultant, who has recently written the imgae processing software for the "DigiPic" Amiga image digitiser.

David Parkinson is Technical Director of Ariadne Software, and author of the successful "The Kickstart Guide to the Amiga."

SOFTWARE AND PERIPHERALS LATEST AVAILABILITY LIST

This latest availability list shows the growing quantity of software and peripherals for the AMIGA. It has been compiled by AMIGA User with the valuable collaboration of leading distributors.
Consult your dealer for price confirmation.

Product	Company	Price
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BBS PC	MicroSystems	£69.95
Dialtext Comms Pack	Electronic Arts	£29.50
Diga!	Aegis	£65.00
Digital Link	Digital Creations	£69.95
Maxicomm	Maxisoft	£49.95
Online!	MicroSystems	£69.95
Ruby-Comm	Y2	£90.00
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Pro-Write	New Horizons	£99.95
Publisher	Vision Technology	£99.95
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Artpak	Aegis	£44.95
Calligrapher	Interactive Softworks	£55.00
Deluxe Paint	Electronic Arts	£69.00
Deluxe Paint Art & Utility Disk	Electronic Arts	£29.95
Deluxe Paint II	Electronic Arts	£129.00
Deluxe Video Construction Set	Electronic Arts	£99.00
Digi-paint	NewTek	£59.95
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Sculpt 3D	Byte	£79.95
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Impact	Aegis	£169.95
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Videoscape 3D	Aegis	£119.95
Zuma Fonts	Zuma Group	£26.00
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A4 Graphics Tablet	Anakin	£499.00
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Amiga Dust Cover (1000)	Amiga User	£16.45
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11. Printers

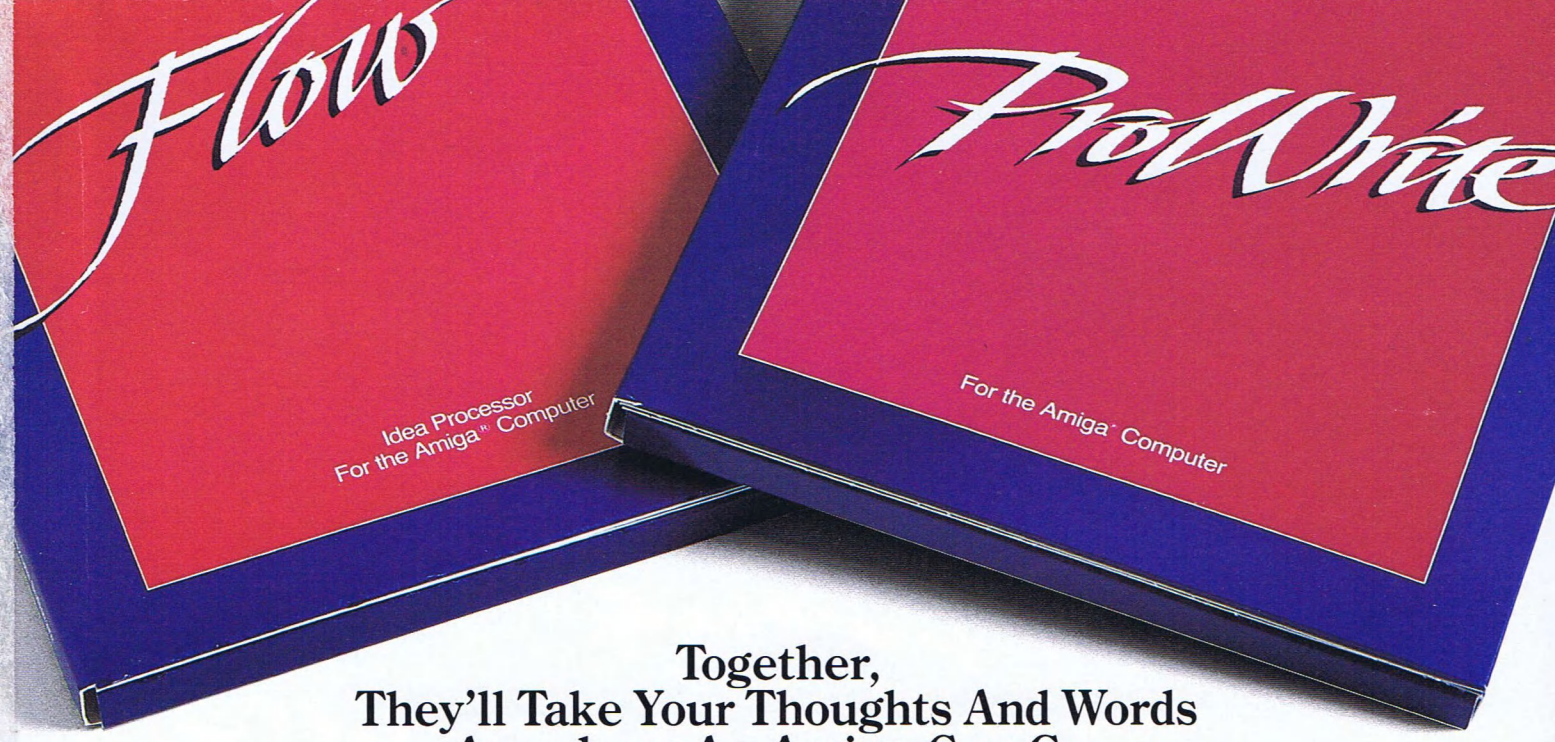
7 Colour Ink Jet Printer	Canon	£449.00
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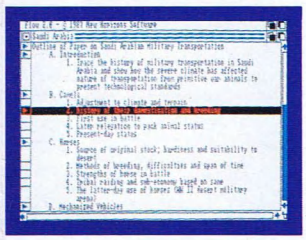
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13. Books

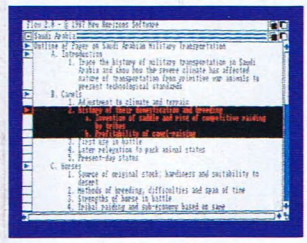
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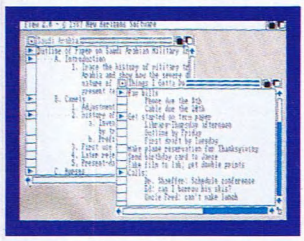
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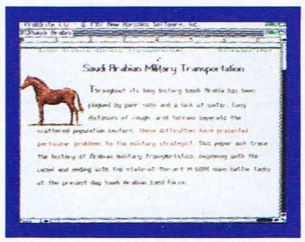
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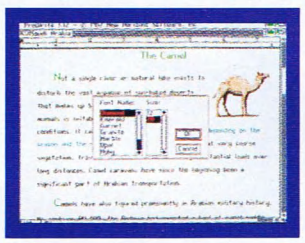
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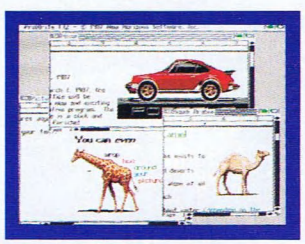
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